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INDEX TO LITERATURE.

In the following index all articles from foreign sources are indicated by the numbers prefixed being in heavy-faced type. All those with the ordinary type relate to American literature.

A.—WORKS OF A GENERAL NATURE.

331. ATKINSON, GEORGE F. *The botanical section of the American Association of Agricultural Colleges and Experiment Stations, Washington meeting.* Bot. Gazette, vol. 16, Sept. 15, 1891, pp. 264-267. A notice of papers read before the Association in August, 1891. Refers to paper by Alwood on "A fungous disease upon apple leaves;" Garman, "A bacterial disease of cabbages;" Discussed by Alwood, Atkinson, and Halsted. Brunk on "Treatment of *Cladosporium fulvum*;" Atkinson on "Fungous diseases of the cotton plant," (exhibition of drawings); Pammel on "A destructive disease of the cherry;" Halsted on "Notes upon *Monilia fructigena* and spore germination." (See Nos. 389, 409, 430, and 542.) (J. F. J.)
332. BRANDEGEE, T. S. *Harvey Wilson Harkness.* Zoë, vol. 2, No. 1, San Francisco, April, 1891, pp. 1-2, pl. 1. A short biographical sketch with portrait. (D. G. F.)
333. BRIOSCHI, F. *Relazione del Presidente.* Atti Reale Acad. Lincei, 4^a ser., vol. 7, Rome, 1891, fasc. 11, adunanza solane d. 7 giugno, pp. 489-495. On pp. 492, 493, mentions the awarding of half a prize of 10,000 lire to Saccardo for his work "Sylloge fungorum omnium hucusque Cognitorum" with a mention of its scope and usefulness. (W. T. S.)
334. COOKE, M. C. *Confessions of a Mycophagist.* Grevillea, vol. 19, No. 91, London, March, 1891, pp. 67-71. Contains remarks on fungous forays and edible fungi; an account of the manner in which the author became a student of the fungi, and a plan for making colored sketches of Agarics. (M. B. W.)
335. GALLOWAY, B. T. *The parasitic enemies of cultivated plants.* The Chautauquan, vol. 14, No. 3, Meadville, Pa., Dec., 1891, pp. 297-302. Gives in popular language a discussion of the nature and causes of plant diseases with an account of the recent advances in the region of economic mycology, special reference being given to the advances made in the use of copper compounds as fungicides. (D. G. F.)
336. [? MASTERS, M. T.] *Mushrooms and their culture* (by C. Brooks). Gard. Chron., 3d ser., vol. 10, No. 253, London, Oct. 31, 1891, p. 518, $\frac{1}{2}$ col. Review. The author states that the work is full of misstatements, erroneous ideas, and bad English. (M. B. W.)
337. [? MASTERS, M. T.] *Mushrooms at the Chicago Exhibition* (by C. Brooks). Gard. Chron., 3d ser., vol. 10, No. 258, London, Dec. 5, 1891, p. 676, $\frac{1}{2}$ col. Notes that casts of the edible mushrooms of the U. S. are to be exhibited. (M. B. W.)
338. [? MASTERS, M. T.] *Plant diseases.* Gard. Chron., 3d ser., vol. 10, No. 256, London, Nov. 21, 1891, p. 617, $\frac{1}{2}$ col. Commends the Journal of Mycology, and suggests that an organization for the investigation of fungous diseases of plants would advance matters in England. (M. B. W.)
339. PRAIN, D. *A list of Diamond Island plants.* Jour. Asiatic Soc. Bengal, new ser., vol. 59, Bengal, 1890 (Mar. 14, 1891), pp. 271-294. Mentions four species of fungi (p. 285) found on the island, all occurring on dead wood. (J. F. J.)

- 340.** SOLMS-LAUBACH. *Fossil botany, being an introduction to Paleophytology, from the standpoint of the botanist; translated by Henry E. F. Garnsey; revised by I. B. Balfour.* Clarendon Press, 8vo, Oxford, 1891, pp. 401, many figs. See review, p. 148. (E. F. S.)
- 341.** WHITEHEAD, CHAS. *Methods of preventing and checking the attacks of insects and fungi.* Jour. Roy. Agric. Soc., 3d ser., vol. 2, London, June 30, 1891, pp. 217-256, figs. 26. A comprehensive paper mentioning many of the fungous diseases of plants, with history and treatment, formulæ for fungicides, and 23 figures of machines for their application. The subject is presented under four heads, viz: Corn crops, root and vegetable crops, fruit crops, and hops. Attention is about equally divided between fungi and insects. (M. B. W.)

B.—DISEASES OF NONPARASITIC OR UNCERTAIN ORIGIN.

- 342.** ALWOOD, W. B. *Diseases of plants.* Southern Planter, 52d year, No. 10, Richmond, Oct., 1891, pp. 552-553. Remarks presence in Virginia of peach yellows, where it has laid waste a large portion of the best peach-growing region of the State. Refers to inquiries from California in regard to Virginia nursery stock. Author has not seen the yellows in the nurseries. Notices presence of black rot of grapes controllable by weak formula of Bordeaux mixture and calls attention to presence of leaf spot of the apple distinct from the apple rust caused by *Rastelia*. (D. G. F.)
- 343.** BAILEY, L. H. *Peach yellows.* Cornell Univ. Agric. Ex. Sta., Bull. 25, Ithaca, Dec., 1890, pp. 178-179. Notes presence and spreading of yellows in New York State; also work of Dr. Erwin F. Smith in Maryland. (D. G. F.)
- 344.** C[OLLINS], A. L. *Causes of die back.* Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, No. 8, Jacksonville, Feb. 19, 1891, p. 143. Discusses cause of die back in oranges. Thinks due to overstimulation by nitrates. (D. G. F.)
- 345.** GALLOWAY, B. T. *La Maladié de la vigne en Californie.* [The vine disease of California.] Progres Agricole et Viticole, 8 Ann., No. 48, Montpellier, Nov. 29, 1891, pp. 509-512. Gives brief notice of the work of the special agent, Mr. Pierce, on the California vine disease, as given in his preliminary report, not yet published. (J. F. J.)
- 346.** GOETHE, R. *Eisenvitriol als Heilmittel der Gelbsucht der Obstbäume.* Bericht K. Lehranstalt für Obst und Weinbau, Jahrg. 1889-1890, Wiesbaden, 1891, p. 30-31. Reviews Sach's work on the treatment of chlorotic plants. Tried experiments with iron sulphate on several varieties of fruit trees with very favorable results. One kg. of iron sulphate was used for smaller trees, 2 kg. for larger. Mentions certain varieties of pear and apple which need more iron and consequently are more subject to disease. Treated trees were less attacked in some cases by the leaf *Aphis* and *Schizoneura*. (W. T. S.)
- 347.** GILLETT, M. E. *Sour stocks the only preventive of foot rot.* Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, No. 44, Jacksonville, Oct. 29, 1891, p. 871. Reports doubtfully the successful use of sour stocks as a preventive of the foot rot. (D. G. F.)
- 348.** HART, W. S. *American Pomological Society meeting in Washington, Sept. 22, 23 and 24, 1891.* Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, No. 40, Oct. 1, 1891, pp. 783-784. Notes on method of exposure of roots and washing of same as a cure for the Mal di Goma or foot rot. Also petition of secretary of Interlachen Hort. Society, that agent of U. S. Department of Agriculture be sent to investigate the orange diseases of Florida. (D. G. F.)
- 349.** HART, W. S. *Foot rot does attack sour stocks.* Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, No. 45, Nov. 5, 1891, p. 891, 2 cols. Discusses in popular language the foot rot of oranges, claiming the disease is present on sour stock,

although sour stocks are more resistant than sweet stocks. Thinks no remedy has been found for the disease, although exposure and washing of roots has seemed to give good results. (D. G. F.)

350. HEIMERL, Dr. ANTON. *Zur Beseitigung der Chlorose.* Wiener illust., Garten-Zeit., 16 Jahr., Wien, August-Sept., 8 n. 9 heft 1891, pp. 331-335. Pale leaves may be due to three causes: (1) lack of light, etiolation; (2) lack of heat; (3) lack of iron. Author speaks especially of the pale leaves due to the last mentioned cause, giving a résumé of the work of Sachs on the subject. Quotes from Sachs the method of treatment: 2-3 or even 6-8 kilograms of iron sulphate is mixed with earth in ditches radiating from the tree between the principal roots or encircling the tree at a distance of 5-10 decimeters from the trunk. Then the tree is liberally watered with 100-150 liters of water. Plants in pots may be immersed in a weak solution of iron sulphate. Explains the rather large quantity of iron sulphate required to take effect on large plants in part by the absorptive action of the soil, in part by the weakening of the power of the plant to absorb it. (W. T. S.)
351. HEWETT, C. B. *Trees, bugs, and disease.* Rural California, vol. 14, Los Angeles, Dec., 1891, p. 727, one-third col. States belief that as peach yellows thrives in a damp and rainy climate it would not exist in the dry air of California. "I believe that if a tree affected by the yellows could be taken up and transplanted from an orchard in the East to our soil and climate that unless too far gone it would revive and get over it entirely." (J. F. J.)
352. JACKSON, J. F. *Peach yellows.* Southern Planter, 51st year, No. 2, Richmond, Feb., 1890, pp. 60-61, one-fourth col. Notes the introduction of peach yellows bill into the Virginia State legislature. (D. G. F.)
353. KING, WM. R. *Mal di Goma.* Bull. U. S. Dept. of Agric., Div. of Pomology, No. 4, Washington, Feb., 1891, pp. 18-19. Describes characteristics of the disease; considers cause as not certainly known, but seemingly of possible bacterial origin; as certainly contagious by use of infected instruments. Recommends as preventive measures: (1) Budding on resistant stocks—wild sour orange, rough lemon or pomelo; (2) planting on dry porous soil if sweet stock be used; (3) careful irrigation, keeping the water from the trunk of the tree; (4) prompt removal and destruction of diseased portions. Quotes from Lelong recommending mixture of 1 peck fresh lime, 4 pounds of copperas, 5 pounds sulphur, mixed in enough water to slake the lime, and keep covered as a good disinfectant paint. (See also Rural Californian, vol. 14, Dec., 1891, p. 718; Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, June 18, 1891, p. 495.) (D. G. F.)
354. LELONG, B. M. *Peach yellows.* Pacific Rural Press, vol. 42, San Francisco, Oct. 10, 1891, pp. 301, 312, pl. 1, map 1. Describes the yellows as it appears in New Castle County, Del., quoting from Bulletin No. 9, Div. Veg. Pathology, and giving plate from same bulletin, and enlarged map of distribution of yellows and rosette in the United States, prepared with aid of Galloway and Smith. An appeal to fruit growers to guard against introduction of disease into California through purchase from unreliable nurseries. (D. G. F.)
355. LELONG, B. M. *Peach yellows. A warning to fruit growers. Danger of introduction into California. Warning to intending purchasers and recommendation.* Cal. State Board of Hort., Sacramento, 1891, pp. 25, pl. 4, 1 map. Discusses the dangers of introduction of disease into California. Gives map showing extent of the disease, extracts from correspondence with large number of eastern horticulturists. Quotes from work by Dr. Erwin F. Smith and proposed ordinance passed by the county board of horticultural commissioners of San Bernardino County. Gives copies of horticultural laws of California and peach yellows laws of Michigan and New York. (D. G. F.)
356. LOS ANGELES EXPRESS. *A risky experiment.* Rural Californian, vol. 14, Los Angeles, Dec., 1891, p. 753, one-fourth col. Refers to statement of theory

- that peach yellows will not thrive in California. Argues that stock should not be imported from infected regions and that home grown, *i. e.*, California stock, should alone be used. (J. F. J.)
357. LUGGER, OTTO. **Disease of flax.** Biennial Rep. Minn. Agric. Ex. Sta., ending Dec., 1890, Minneapolis, 1891, p. 19. Notes destructive disease of flax near Windom, Minn., and promises further report upon experiments in its prevention. Noted as a contagious disease, but cause not given. (D. G. F.)
358. MANVILLE, A. H. **Willfoot rot attack the sour stock?** Fla. Disp., Farmer and Fruit-Grower, new ser., vol. 3, No. 41 Jacksonville, Oct. 8, 1891, pp. 803-804, 1 col. Expresses doubt as to occurrence of the foot rot of oranges upon sour stocks. (See also Rural Californian, vol. 14, Dec. 1891, p. 724.) (D. G. F.)
359. [?MASTERS, M. T.] **Cucumber disease.** Gard. Chron., 3d ser., vol. 10, London, July 18, 1891, p. 75, $\frac{1}{2}$ col. Notes receipt of specimens of diseased cucumbers with nodules on roots. (M. B. W.)
360. [?MASTERS, M. T.] **Peach yellows.** Gard. Chron., 3d ser., vol. 9, London, Feb. 28, 1891, p. 274, $\frac{1}{2}$ col. Notes the receipt of specimens of peach yellows from the Cape of Good Hope, and states that the disease is unknown in England. (M. B. W.)
361. [?MASTERS, M. T.] **Tomato diseases.** Gard. Chron., 3d ser., vol. 9, London, May 9, 1891, p. 593, $\frac{1}{2}$ col. Notes the receipt of diseased tomato plants, in which neither insects nor fungi could be found, with description of external characters. (M. B. W.)
362. MAYET, VALERY. **Rapport sur une maladie affectant les citronniers dans l'arrondissement de Calvi.** Ministère de l'agric. Bull., 1891, No. 5, 10th yr., Paris, Oct., 1891, pp. 449-456. Contains an interesting account of gummosis or foot-rot of citron trees in the north part of Corsica. The disease is thought to be the same as one which formerly attacked orange trees in S. E. France, Italy, and Portugal, and analogous to a disease of pomaceous trees in Normandy, reported on by Van Tieghem, in Ann. Soc. Bot. de Fr., 1879. It is believed to be of nonparasitic origin and due to a series of rainy seasons, to excessive irrigation, or to any other cause which, by depriving the roots of air, compel them to derive oxygen from stored sugar with the formation in the tissues of alcohol and CO² and the series of symptoms described. In other words the disease is ascribed to asphyxia of the roots, and may be called "pouridie without fungi." It has done great injury in Corsica. (E. F. S.)
363. RHIND, DUNCAN. **Peach yellows and its remedy.** Cult. and Country Gent., 61st year, No. 2027, Albany, Dec. 10, 1891, pp. 996-997, 1 col. States belief that disease is caused by overcropping, combined with excess of moisture, growing varieties not hardy, and growing late varieties that can not properly ripen wood. Advocates grafting on hardy stock, such as plum and almond. Believes disease to be due to impaired vitality, and must be treated by each orchardist for himself according to circumstances. (J. F. J.)
364. RURAL CALIFORNIAN. **Bugs and diseases.** Rural Californian, vol. 14, Los Angeles, Dec., 1891, p. 727, $\frac{1}{2}$ col. Quotes resolutions adopted by convention of fruit-growers in Marysville, Cal., against importation of nursery stock, peach, apricot, etc., from regions infected with "yellows." (J. F. J.)
365. RURAL CALIFORNIAN. **[Peach yellows in Connecticut].** Rural Californian, vol. 14, Los Angeles, Dec., 1891, p. 723, $\frac{1}{2}$ col. Refers to presence of yellows in Connecticut and notes recommendation to destroy all trees affected with the disease. (J. F. J.)
366. SCIENTIFIC AMERICAN. **Peach yellows.** Scientific American, vol. 65, New York, Sept. 26, 1891, p. 194, $\frac{1}{2}$ col. Quotation from New England Farmer referring to belief that the disease is a symptom of starvation, and can be cured by potash and nitrate of soda, 10 pounds of the former to 5 of latter. Also notes the belief by M. P. Augur that disease is caused by microscopic germs. Refers to work of Erwin F. Smith. (J. F. J.)

367. SMITH, ERWIN F. **Additional evidence on the communicability of peach yellows and peach rosette.** Bull. U. S. Dept. of Agric., Div. Veg. Path., No. 1, Washington [Dec.], 1891, pp. 65, pl. 39. Comprises the author's investigations, covering a period of three years, into the nature and communicability of peach yellows, and the characterization of a new disease of the peach in Georgia and Kansas. Gives series of inoculation experiments with the yellows conducted in Maryland, together with 50 excision experiments in seven different orchards, which, in connection with a series of experiments bearing upon immunity of the disease, warrant the author in drawing the following conclusions: (1) That the disease is contagious; (2) that it may be conveyed by seemingly healthy buds when these are taken from diseased trees; (3) that only a very small quantity of infectious material is necessary, provided it be in the form of living cells which can be induced to unite with the actively growing tissue of the tree; (4) that the disease has a longer period of incubation than has been customary to suppose; (5) that the death of the entire tree occurs, ordinarily, only after a very considerable period, *i. e.*, several years. The peach rosette, upon which a most successful series of bud inoculation experiments is reported, is found to differ from the yellows in eight characteristic features. The author's experiments with buds taken from wholly diseased trees and from the healthy side of a diseased tree resulted in transmission of the disease in the former case, and healthy growths in the latter. The author concludes in regard to this remarkable disease: (1) That it is virulently contagious; (2) that it may exist for a short time in a part of the tree without being present in the rest; (3) that it has gained a strong foothold in Georgia and is on the increase; (4) that the necessity for prompt concerted action on the part of Georgia peach-growers by removal of all diseased trees is very great. (D. G. F.)
368. SMITH, ERWIN F. **Chemistry of peach yellows.** Cult. and Country Gent., vol. 56, No. 2021, Albany, Oct. 22, 1891, p. 859, $\frac{1}{2}$ col. Short abstract of paper read before the 23d biennial meeting of the American Pomological Society. Reported by T. G. R., giving a few results of treatment by fertilizers. (D. G. F.)
369. SMITH, J. H. **A disease of lime trees.** Fla. Disp., Farmer and Fruit-Grower, new ser., vol. 3, No. 42, Jacksonville, Oct. 15, 1891, p. 827, $\frac{1}{2}$ col. Notes a peculiar disease causing blossoms to fall in spring and leaves to become knotty. (D. G. F.)
370. WIESTER, W. H. **Apricot disease.** Pacific Rural Press, vol. 42, San Francisco, July 11, 1891, p. 28, $\frac{1}{2}$ col. Gives complaint of apricot disease known as die-back, said by editor to be "an old complaint." (D. G. F.)
(See also Nos. 411, 412, 433, 470, and 507.)

C.—DISEASES DUE TO FUNGI, BACTERIA, AND MYXOMYCETES.

A.—RELATIONS OF HOST AND PARASITE.

371. DANGEARD, P. A. **Note sur les Mycorhizes Endotrophiques.** Le Botaniste, 2^e ser., 5^e fasc., Paris, May 1, 1891, pp. 223-228, figs. 8. Discusses in more or less general way symbiotic action of fungi and roots of phanerogams, and describes the presence of a species of endotropic Chytridiaceæ, *Cladocytrium tmesipterides* n. sp., which the author concludes is probably parasitic in the rhizomes of *Tmesipteris viellardi*, although in some respects apparently in symbiotic relations with the host. A second species of *Mycorrhiza* found growing upon the same rhizomes the author believes is probably identical with either Wahrlich's *Nectria goroshaukiniana* or *N. randa*. He is disposed to consider this latter species together with a third fungus found in connection, the name of which is not given, as being of use to the plant. The study is made from herbarium specimens only. (D. G. F.)

- 372.** HEIMERL, DR. ANTON. *Ueber Symbiose. Vortrag, gehalten am 6 März, 1891 in der k. k. gartenbau Gesellschaft.* Wiener illust. Gart. Zeit., 16 Jahr., Wien, 4 heft April, 1891, pp. 138-146. Mentions in course of a popular lecture *Mycorrhiza*, and the *Rhizobium leguminosarum* in root tubercles of Leguminosæ. Gives a résumé of recent work on the absorption of free nitrogen by Leguminosæ, and discusses the part played by the fungus in the act. (W. T. S.)
- 373.** LYON, W. S. *Damping off.* Garden and Forest, vol. 4, No. 199, New York, Dec. 16, 1891, p. 599, ½ col. Refers to statement frequently made that disease germs are on the seeds, but says he was unable to find any. Considers fine pulverizing of the soil and then sprinkling to be especially favorable to spread of disease. Concludes the disease germs are in the soil, as contended by Halsted. (J. F. J.)
- 374.** [? MASTERS, M. T.] *Parasitic fungi in relation to plant diseases.* Gard. Chron., 3d ser., vol. 9, London, Feb. 14, 1891, p. 211, ½ col. Syllabus of three lectures to be delivered by C. B. Plowright before the Royal College of Surgeons, England. (See also *Ibid.*, Jan. 24, 1891, p. 114.) (M. B. W.)
- 375.** [? MASTERS, M. T.] *Parasitism in plants.* Gard. Chron., 3d ser., vol. 9, London, May 16, 1891, p. 620, ½ col. Notes a lecture given by Prof. H. Marshall Ward, in the Royal Botanic Gardens, on "Problems of Parasitism in Plants." (M. B. W.)
- 376.** RÁTHAY, EMERICH. *Ueber myrmekophile eichengallen.* Botanisches Centralbl. Bd., 49 No. 1, 13 Jahrg., Cassel, 9 Jan., 1892, pp. 12-13. A notice in Originalbericht gelehrter gesellschaften. k. k. zool. bot. Gesell. in Wien. Mentions a theory of Delpino that the spermogonia of certain rust fungi by attracting ants and other pugnacious insects, protect those leaves on which they occur, so that they may live to produce the *Æcidia*. (W. T. S.)
- 377.** RUSH, W. H. *Penetration of the host by Peronospora gangliformis.* Bot. Gazette, vol. 16, No. 7, July, 1891, pp. 208-209, fig. 1. Figures penetration of stomata of *Lactuca sativa* by germ hyphæ of conidia of *Peronospora gangliformis*; finds no case of penetration of epidermal cells, contrary to de Bary's observation. (D. G. F.)
- 378.** VUILLEMIN, PAUL. *Sur les effets du parasitisme de l'Ustilago antherarum.* Comptes Rendus, vol. 113, Paris, Nov. 9, 1891, pp. 662-665. It is well known that the pistillate flowers of *Lychnis dioica* take the appearance of hermaphrodites when invaded by this fungus. It was formerly supposed that when any flowers of a plant were attacked all were. The author shows that such is not the case. The flowers of a single branch may be invaded, while those of a neighboring one may escape. The base and lower branches may escape, while all the flowers in the top of the plant are affected. In other cases some small branches may be affected, among which the stem pushes out sound branches. Such partial attacks are common. The action of the parasite stimulates the development of the normally abortive stamens and the smut spores take the place of pollen grains and escape, and are distributed in the same way. The author thinks there is a symbiosis analogous to that in galls. He has found the stigmas of isolated and healthy plants powdered with spores of *Ustilago*, which he believes were transplanted from infected plants by visiting insects. (E. F. S.)
(See also Nos. 379, 381, 428, 432, 443, and 450.)

B.—DISEASES OF FIELD AND GARDEN CROPS.

- 379.** ARTHUR, J. C. *Wheat scab.* Bull. Purdue Univ., Agric. Ex. Sta., vol. 2, No. 36, Lafayette, Aug. 25, 1891, pp. 129-132. Records presence near Lafayette of disease of wheat probably caused by a *Fusarium* more or less nearly related to *Fusarium (Fusisporium) culmorum* of W. G. Smith. Estimates damage from the parasite at from 10 to 20 per cent. Points out fact that the late plant-

- ing of wheat greatly influences amount of "scab;" that planted late, and hence blooming late being worst affected. Considers vigorous growth and early blooming the chief safeguards against the disease. (D. G. F.)
380. BOLLEY, H. L. **A disease of beets, identical with deep scab of potatoes.** Bull. Gov. Agric. Ex. Sta., N. Dak., No. 4, Fargo, Dec., 1891, pp. 15-17, pl. 1. Describes disease and states it seems to be the same as that affecting potatoes. Occurs also on turnips, cabbage roots, and carrots. (J. F. J.)
381. BOLLEY, H. L. **Notes on potato scab.** Agric. Science, vol. 5, No. 9, La Fayette, Sept., (Nov. 7,) 1891, pp. 212-214. Gives result of investigations made in Dakota, in which the fungus characterized by Thaxter is found undoubtedly genetically connected with the disease. Considers it possible that his previous year's investigation may contain errors and acknowledges the superiority of Thaxter's fungus as a scab producer. (D. G. F.)
382. BOLLEY, H. L. **Potato scab, and possibilities of prevention.** Bull. Gov. Agric. Ex. Sta., N. Dak., No. 4, Fargo, Dec. 1891, pp. 1-14, 21-31, pl. 1, figs. 4. Discusses nature of potato scab, giving theories in regard to cause. Considers disease due to parasitic fungi and describes effects. Gives report of experiment for prevention of disease and recommends selection of sound potatoes for seed; gives also formula for treating seed before planting, as follows: Corrosive sublimate, 2 oz., dissolve in 2 gallons of hot water and leave all night; dilute with 13 gallons of water, stir thoroughly and immerse potatoes to be used for seed in mixture for 1½ hours; dry potatoes, cut and plant as usual. In appendix to article gives table of tests of effects of character of soil on the origin of the disease, together with statement of treatment adopted for prevention. Discusses the difference between surface and deep scab, leaving the subject in doubt as to whether the diseases are distinct or different forms of the same. (J. F. J.)
383. CHESTER, F. D. **Notes on three new or noteworthy diseases of plants.** Bull. Torrey Bot. Club, vol. 18, Dec. 1891, pp. 371-374. Refers to and describes (1) Anthracnose of the tomato, caused by *Colletotrichum lycopersici*, n. sp. (2) A leaf spot of celery, possibly caused by a new species, in which case it might be named *Septoria apii*. (3) Blight of watermelon vines caused by *Phyllosticta citrullina*, n. sp. (J. F. J.)
384. CLAYPOLE, KATHERINE B. **My garden on an onion.** Pop. Sci. Monthly, vol. 39, New York, May, 1891, pp. 72-76, figs. 3. Gives account in popular language of attacks of *Penicillium glaucum* and *Polyactis* sp. upon onion bulbs. Notes parasitism of *Barytidamia* upon *Polyactis*. (See also International Jour. Micros. and Nat. Sci., 3rd ser. vol. 1, London, Nov., 1891, pp. 329-333, pl. 1.) (D. G. F.)
385. COQUILLET, D. W. **Some pests of the horticulturist.** Rural Californian, vol. 14, Los Angeles, Dec., 1891, pp. 714-715. Refers to potato blight (*Phytophthora infestans*) and states results of use of Bordeaux mixture. Gives formula and recommends its use. (J. F. J.)
386. CRAWFORD, J. M. **Cotton growing in Russia.** Reports from consuls of the United States, No. 130, Washington, July, 1891, pp. 425-430. Refers (p. 426) to the "rust" of cotton appearing in the Erivan district in 1888 after a wet summer. The disease had never before been observed on the plant known locally as "Kara-kosa," but in some localities it destroyed nearly one-half the crop. (J. F. J.)
387. CROZIER, A. A. **Potato scab.** Agric. Science, vol. 5, La Fayette, No. 9, Sept., 1891. (Nov. 7, 1891, p. 215.) Gives results obtained from planting two rows of potatoes, the one of scabby tubers and the other of healthy ones. Concludes harvest from planting of healthy tubers, though partly scabby, better than the harvest from the planting of scabby tubers. (D. G. F.)

388. GALLOWAY, B. T. **Further observations on a bacterial disease of oats.** Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891, p. 257. Short notice, by editor, of paper read before Section F, A. A. A. S., Aug., 1891, at Washington, D. C., giving results of study of disease, showing ability of germ to pass the winter on seed from diseased plant, on volunteer oats, and to limited extent in soil. (D. G. F.)
389. GARMAN, H. **A bacterial disease of cabbages.** Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891, p. 265. Notice of paper read before the Botanical Sec. Am. Asso. Agric. Col. and Ex. Sta., Aug., 1891, in which rotting of cabbage heads is traced to work of bacteria. (See No. 331) (D. G. F.)
- 390. GRIFFIN, G. W. Australasian wheat harvest, 1890-'91.** Reports from consuls of United States, No. 128, Washington, May, 1891, pp. 120-128. Refers (p. 127) to rust in wheat. A. N. Pearson, of Victoria, has been experimenting with hybrids to prevent rust, as well as improve the quality of seed in other respects. In Gippsland two varieties and at Port Fairy six varieties have escaped the disease. (J. F. J.)
391. HALSTED, B. D. **A new eggplant disease.** Bull. Torrey Bot. Club, vol. 18, No. 10, Oct., 1891, pp. 302-303. Gives paper read before the Botanical Club of the Am. Asso. Adv. Sci., Washington, Aug., 1891, describing *Phoma solani*, n. sp., as one of the damping-off fungi attacking young eggplants in the hot-bed. Gives account of successful culture of the fungus on agar and sterile portions of healthy stems. Notes in connection as injurious to eggplants, *Phyllosticta hortorum*, Speg., *Botrytis fascicularis*, (Cd.) Sacc., *Gloeosporium melongenae*, E. & Hals. Noticed in Bot. Gazette, vol. 16, Sept. 15, 1891, p. 261. (D. G. F.)
392. HALSTED, B. D. **A new *Nectria*.** Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891, p. 257. Short notice of paper read before Section F of A. A. A. S. Aug., 1891, describing stem-rot of sweet potato as caused by a new *Nectria* related to *Nectria Vanda*, Ward. (D. G. F.)
393. HALSTED, B. D. **Notes upon bacteria of cucurbits.** Bot. Gazette, vol. 16, Sept. 15, 1891, pp. 257, 258. Short notice of paper read before Section F of A. A. A. S., Aug., 1891, giving results of study of disease of melons, squash, and cucumber plants, caused by bacteria. (D. G. F.)
394. HUMPHREY, J. E. **Some diseases of lettuce and cucumbers.** Bull. Mass. State Agric. Ex. Sta., No. 40, Amherst, July, 1891, pp. 2-3. Gives preliminary notice of a destructive disease of lettuce caused by a species of *Polyactis* or *Botrytis* occurring in the greenhouses. Recommends clean culture as the best preventive. Notes presence of *Oidium erysiphoides*, Fries. var. *cucurbitarum*, Auch, upon hothouse cucumbers sent from Fitchburg, Mass., and Ithaca, N. Y. Recommends potassium sulphide 1 oz. in 3 gallons of water, finding 1 oz. per 2 gallons injures foliage. (D. G. F.)
396. JONES, L. R. **A new (?) oat disease.** Fourth Ann. Rept. Vt. Agric. Exper. Sta., Burlington, 1890, p. 139. Reports serious disease of young oat plants in the State, surmising from observation that it was caused by *Fusicladium destruens*, Peck. (See No. 167.) (D. G. F.)
397. JONES, L. R. **Smut on oats.** Fourth Ann. Rep. Vt. Agric. Exper. Sta., Burlington, 1890, pp. 138-139. Reports percentage of smut in experimental plots and fields in 1890 as ranging from a fraction of 1 per cent up to 23 per cent by actual count. (D. G. F.)
- 398. JONKMAN, Dr. H. F. *Vijanden der koffieplant.*** Album der Natuur, Haarlem, 1892, pp. 1-20, 33-49. Treats of the parasites of the coffee plant, especially of *Hemileia vastatrix* and a root nematode. The leaf disease due to the former was first discovered in Ceylon about 1869, and two years later in the south part of British India. In 1877 the blight appeared to such an extent in Ceylon that the coffee product fell from 45,000 to 25,000 kilograms. Since then the product has diminished so greatly that the island can scarcely any longer

be regarded as a coffee-producing country. The disease first appeared in Sumatra in August, 1876. It was discovered in the botanic garden at Buitenzorg in March, 1879. Later it was found to have shown itself generally in Java in 1879-'80. It is not yet known definitely to occur outside of the Indian Ocean region, although a similar sort has been reported from West Africa, and a coffee-leaf disease was reported in 1890 from Central America. (E. F. S.)

- 399.** KIRCHNER, O. *Braunfleckigkeit der Gerstenblätter.* Zeitschrift für Pflanzenkrankheiten, Bd. 1 Heft 1, Stuttgart, 1891, pp. 24-26, figs. 2. Reports the occurrence of a disease of barley caused by *Helminthosporium gramineum* (Rabenh.) Eriksson, that Eriksson had already reported from Sweden. It causes dark brown spots often over 1 cm. long visible on both sides of the leaf and surrounded by a narrow yellow margin. With the progress of the disease the spots elongate and the leaves wilt and turn yellow. Gives description of the fungus; it was found at Hohenheim, Vorarlberg and in Tirol in 1889 and in and around Hohenheim again in 1890. Did not cause serious damage in that it attacked only the lower leaves. Was not found on other cereals. (W. T. S.)
- 400.** LEATHR, J. W. *The smut of onions.* Jour. Roy. Agric. Soc., 3rd ser., vol. 2, London, Sept. 30, 1891, pp. 647-650. Review of a paper by R. Thaxter in Annual Report of the Connecticut Agric. Ex. Sta. for 1889, giving an abstract. (See No. 10.) (M. B. W.)
- 402.** PAMMEL, L. H. *Fungous diseases of Iowa forage plants.* Monthly review Iowa Weather and Crop Service. Separate, 1891 (?), pp. 33, figs. 15. Deals in more or less popular way, using illustrations from various authors, with the following diseases: (I) Rusts of wheat, barley, oats, Indian corn, clover and apple. (II) Smuts of Indian corn, oats, barley and wheat, with method of treatment. (III) Smuts of timothy, wild rye, tall meadow oat grass, brome grass, *Bromus breviaristatus*, *Cenchrus tribuloides*, and old witch grass (*Panicum capillare*). (IV) Mildews, *Erysiphe graminis* on various species of grass and *Peronospora graminicola* on *Setaria Italica* and *Setaria viridis*; *Peronospora trifoliorum* on various species of clover. (V) Ergot. Hosts affected, chemical composition, and a short history of ergotism quoting from work of various authors. (VI) Spot diseases: *Phyllacora graminis*, Pers. on *Agropyrum repens*, *Elymus Canadensis*, *Asprella hystrix*, *Panicum dichotomum*; *Phyllo-lachora trifoliae* on clover. *Phacidium medicaginis*, Lasch, on alfalfa; *Scleco-trichum graminis* on orchard grass. *Helminthosporium graminum*, Rabh., on barley. (VII) Bacterial diseases; sorghum blight, bacterial disease of corn discovered by Burdill. Notes failure of the pure culture from the diseased cornstalks to produce the cornstalk disease of cattle as announced by Billings. (D. G. F.)
- 403.** PRILLIEUX, M. *La pourriture du Cœur de la Betterave.* Bull. Soc. Mycol. France, vol. 7, Paris, Mar. 31, 1891, pp. 15-19, figs. 3. Ascribes the heart rot of the sugar beet to a new fungus, *Phyllosticta tabifica*, which attacks the petioles of the larger leaves. Considers the dark-colored fungi on the central leaves as secondary. (E. A. S.)
- 404.** PRILLIEUX ET DELACROIX. *A propos du Cercospora apii, parasite sur les feuilles vivantes du Celery.* Bull. Soc. Mycol. France, vol. 7, Paris, Mar. 31, 1891, pp. 22-23. Notes the injurious presence of *Cercospora apii* in the experimental garden of the "Institute Agronomique," at Joinville-le-pont, and gives the manner of infection. (E. A. S.)
- 405.** PRILLIEUX ET DELACROIX. *Sur une maladie des Tomatoes produite par le Cladosporium fulvum*, Cooke. Bull. Soc. Mycol. France, vol. 7, Paris, Mar. 31, 1891, pp. 19-21; figs. 3. Describes the effect and external appearance of the fungus. Notes the successful use of sulphur and unsuccessful use of Bordeaux mixture in combating it. (E. A. S.)

- 406.** REID, JAS. A. **The potato and its blight in Ireland.** Repts. from consuls of U. S., No. 125, Feb., 1891, pp. 182-184. Refers to the destruction of potatoes by *Peronospora infestans*. Explains in a general way the life history of the fungus. The remedies suggested are: (1) Hilling up earth about stalks; (2) cutting off diseased tops; (3) removing and burning rubbish; (4) planting varieties most successful in resisting disease; (5) growing crops under conditions to insure health and vigor; (6) careful selection of seed. (J. F. J.)
- 407.** RUSSELL, SAM'L J. **Linseed in India.** Repts. from consuls of U. S., No. 126, Mar., 1891, pp. 341-344. States (p. 342) that rust is a great enemy of the plant and it always suffers from it in damp seasons. (J. F. J.)
- 408.** SMITH, W. G. **Tobacco disease.** Gard. Chron., 3rd ser., vol. 9, No. 216, London, Feb. 14, 1891, p. 211, $\frac{1}{2}$ col., fig. 1. Notes that Prof. Farlow has stated that *Peronospora hyoscyami* has badly attacked *Nicotiana glauca* in Mexico and California. (M. B. W.)
(See also Nos. 482, 483, 484, 485, 486, 487, 489, 507, 553 and 591.)

C.—DISEASES OF FRUITS.

- 409.** ALWOOD, WM. B. **A fungous disease upon apple leaves.** Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891, p. 265. Notice of paper read before Bot. Sec. Am. Ass. of Agric. Col. and Ex. Sta., Aug. 13, 1891, giving account, without description, of species of fungous disease of apple, and successful use of weak Bordeaux in its prevention. (See No. 336.) (D. G. F.)
- 410.** BAILEY, L. H. **Preservation of trees.** Am. Farm News, vol. 4, No. 7, Aug., 1891, p. 11, 2 cols. Gives abstract of address delivered before N. Y. State Cider and Cider-Vinegar Makers' Association at Albany, N. Y., Jan. 28, 1890 [1891?]. Discusses the failure of the fruit crop in New York State in 1890. Expresses the opinion that the failure was due largely to the action of *Fusicladium dendriticum* and gives formulæ for preparation of ammoniacal solution of copper carbonate, and modified eau celeste. (D. G. F.)
- 411.** BEACH, JOHN B. **Lemon scab—Orange blight.** Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, No. 31, Jacksonville, July 30, 1891, p. 603, 1 col. Cites success of one spraying with sulphate of potash 50 per cent; also successful use of sulphide of lime made by boiling quicklime with flowers of sulphur as preventive of the scab. Thinks blight is advanced condition of black limb. (D. G. F.)
- 412.** BEAN, E. **Report of committee on diseases and insects of the Citrus.** Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, No. 21, May 21, 1891, pp. 409-410. Notes the following diseases with opinions as to their causes; foot rot, leaf blight, rust, black smut and a new disease similar to that on the grapevine attacking the ends of the branches of orange trees. (D. G. F.)
- 413.** BRUNK, T. L. **Blackberry rust.** 3d Ann. Rept. Maryland Agric. Ex. Sta., College Park, 1890, pp. 115-116. Gives estimates of per cent of rust, *Caeoma nitens*, Schw., on 20 varieties of blackberries growing on station farm. Concludes Wilson's early, Wilson's junior, Wachusett, early harvest, crystal white, and Thompson's early mammoth as least susceptible to the disease. (D. G. F.)
- 414.** BRUNK, T. L. **Strawberries.** 3d Ann. Rept. Maryland Agric. Ex. Sta., College Park, 1890, pp. 104-108. Gives table showing the susceptibility of a large number of varieties of strawberries to the leaf blight (*Sphaerella fragariae*). Concludes varieties of Bidwell, Van Deman, Anna Forest, Haverland, Hoffman, daisy, ruby, and bubach No. 5 are the five least susceptible varieties situated on the station grounds. Gives résumé of results and recommendations of preventive treatment, quoting from Garman and others. (D. G. F.)

415. [CHURCHILL, GEORGE W.] **Some of the most common fungi and insects—with preventives.** Bull. N. Y. Agric. Ex. Sta., new ser., No. 35, Geneva, Aug., 1891. pp. 603–627. Gives reprints from reports of U. S. Dept. of Agriculture describing black rot, downy mildew, anthracnose, powdery mildew, grape leaf blight, white rot, bitter rot of grape, leaf-blight of the strawberry, orange rust, and anthracnose of the raspberry; formulæ for fungicides, methods of applying the remedies, and cost of the treatments. Apple scab, black knot of the plum and cherry, with original notes. (See also 9th Ann. Rept. N. Y. State Agric. Ex. Sta., for 1890, pp. 309–351; Exper. Sta. Rec., vol. 3, Jan. 1892, pp. 403–404.) (D. G. F.)
416. CLARK, JOHN W. **Fear or fire blight (*Micrococcus amylovorus*, Bur.).** Bull. Mo. Agric. Col. Ex. Sta., No. 16, Columbia, Nov., 1891, pp. 8–10, diagram. Gives results of experiments in orchard at the college. No remedy but cutting out. Dwarf and standard trees blight equally. (J. F. J.)
417. COOKE, M. C. **Another vine disease (*Glaeosporium pestiferum*, C. & M.).** Gard. Chron., 3d ser., vol. 9, No. 212, London, Jan. 17, 1891, p. 82, ½ col. Describes the microscopic characters and injury to the host. The specimens came from Brisbane, Queensland, Australia. (M. B. W.)
418. DETMERS, FREDA. **Diseases of the raspberry and blackberry.** Bull. Ohio Agric. Ex. Sta., 2d ser., vol. 4, No. 6, Columbus, Oct., 1891, pp. 124–129, pl. 2. Describes the external appearance of the disease caused by the *Glaeosporium venetum*, Speg., *Septoria rubi*, Westd., and *Caoma nitens*, Schw. Refers to note in Hedwigia, 1891, Heft 3, p. 178, by C. A. J. A. Oudemans, who shows the name *Caoma interstitiale* of Schlechtendal has priority over the old name of *C. nitens*, Schw. Describes the disease of raspberry canes, “which causes wide, dark discolorations of the bark without rupture of any kind,” as of bacterial origin. Quotes letter of Burrill to this effect and mentions that cultures of the organism have already been made. (See Ex. Sta. Rec. Washington, vol. 3, Jan., 1892, p. 411.) (D. G. F.)
419. FAIRCHILD, D. G. **Notes on a new and destructive disease of currant canes.** Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891, p. 262. Notice of paper read before Bot. Club of A. A. A. S., Aug., 1891, describing work on the disease, showing it to be caused by peculiar species of fungus as yet unclassified. (J. F. J.)
420. [GALLOWAY, B. T.] **[Black rot, downy mildew, and anthracnose of the grape.]** Circular No. 11, Div. Veg. Path., U. S. Dept. of Agric., 1891, p. 1. A circular containing ten questions, issued to ascertain the per cent of loss from diseases of grapes, and extent of the use of fungicides recommended by the Division. (J. F. J.)
421. FLORIDA DISPATCH, FARMER AND FRUIT GROWER. **The cracking of fruit and vegetables.** Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, Jacksonville, Mar. 19, 1891, pp. 224–225, 2 cols. Review of article by E. S. Goff discussing in popular language the causes of cracking of fruits and vegetables. Mentions *Fusicladium* as cause of cracking of pears. Gives results of experimental demonstration of osmotic action as cause of cracking of ripe apples. (D. G. F.)
422. HALSTED, B. D. **Fungi injurious to fruits.** Science, vol. 18, New York, Dec. 18, 1891, pp. 337–338. Extract from paper read before Ohio State Horticultural Society. Advocates keeping plants in good condition and thus enabling them to better resist attacks of fungi. Believes also in rotation of crops, especially root crops attacked by disease. (See also Prairie Farmer, vol. 64, Jan. 30, 1892, ½ col.) (J. F. J.)
423. HALSTED, B. D. **Experiments for the year upon cranberry diseases.** Rept. N. J. State Board Agric., vol. 18, Trenton, 1891, pp. 266–272. Quotes act passed by legislature of New Jersey to prevent spread of fungous diseases of plants. Refers to occurrence of cranberry-gall fungus (*Synchytrium vaccinii*) and to cranberry scald. Gives results of experiments with fungicides, but con-

- cludes that the conditions favoring the scald are to be found in the bog, its soil, water, etc. "The cure for the malady must be in a renovated bog." (J. F. J.)
424. HALSTED, B. D. **Papers on fungi injurious to fruits and fungi injurious to garden crops.** Read before the Ohio State Horticultural Society at Zanesville, Ohio. Columbus, December, 1890 (1891), pp. 13. Gives popular account of the various parasitic fungi of fruits and vegetables. (D. G. F.)
425. [HUNN, C. E.] **Diseases of the raspberry.** Bull. N. Y. Agric. Ex. Sta., new ser., No. 36, Geneva, Sept., 1891, p. 641, one-half page. Describes disease and mentions treatment in progress at the station. (D. G. F.)
426. JONES, L. R. **Apperust and cedar apples.** Fourth Ann. Rept. Vt. Agric. Ex. Sta., Burlington, 1890, p. 139. Reports serious case of rust of apple leaves caused by *Gymnosporangium* sp. *Ræstelia* stage, from cedar trees in vicinity of orchard. A simple experiment was undertaken to test the effect of spraying with ammoniacal copper carbonate [1 oz. carbonate in 1 quart ammonia, 22 gallons of water]. Sprayings made May 17 and May 30 after first appearance of jelly-like sori on cedar apples failed to prevent the appearance of the *Ræstelia* upon the apple leaves. (D. G. F.)
427. JONES, L. R.. **Notes upon some other fungous diseases which are prevalent.** Fourth Ann. Rept. Vt. Agric. Ex. Sta., Burlington, 1890, pp. 142-144. Gives notes upon black scab of apple, black scab of pear, pear blight, strawberry leaf blight, currant rust or leaf spot disease (*Septoria ribis*, Desm.), raspberry and blackberry cane rust, ergot, grape mildews, hollyhock rust, mostly of nature of popular description. (D. G. F.)
428. KELLER, ROB. **Die amerikanischen Reben und ihre Bedeutung für die europäische Rebekultur.** Biologisches Centralbl., vol. 11, Nos. 3 and 4, Mar., 1891, Leipzig, pp. 65-74, 97-110. A review of recent literature on the subject, especially of Viala, "Une Mission viticole en Amérique." Mentions resistance of American vines against *Phylloxera*, *Peronospora*, and *Oidium*. Ascribes the weakness of European sorts to their not being adapted to resist the parasites. Sketches the history of *Læstadia Bidwellii*. (W. T. S.)
429. [? MASTERS, M. T.] **Gooseberry fungus.** Gard. Chron., 3rd ser., vol. 9, No. 232, London, June 20, 1891, p. 770, one-eighth col., fig. 3. Brief note of occurrence with figures of the fungus *Aecidium* and diseased fruit and leaves. (M. B. W.)
430. PAMMER, L. H. **A destructive disease of the cherry.** Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891, p. 266. Notice of paper read before Bot. Sec. Am. Asso. Agric. Col. and Ex. Sta., Aug., 1891, describing injurious effects of a species of *Cladosporium*. (See No. 331.) (D. G. F.)
431. PATOUILLARD ET DELACROIX. **Sur une maladie des dattes produite par le Sterigmatocystis phœnicis, (Corda) Patouill. et Delacr.** Bull. Soc. Mycol. France, vol. 7, Paris, June 30, 1891, pp. 118-120, pl. 1. Changes *Ustilago phœnicis*, Corda, to the genus *Sterigmatocystis*. Describes the external appearance of the diseased fruits, and gives diagnosis of the species. (E. A. S.)
432. [PECK, C. H.] **Fungi on plums.** Cult. and Country Gent., vol. 56, Albany, May 21, 1891, p. 416, 1 col. Discusses, in answer to inquiry, diseases caused by *Monilia fructigena*, Pers. and *Exoascus pruni*. States hyphae of the former incapable of penetrating the unruptured epidermis of various fruits. Recommends for *Monilia*, applications of fungicides; for *Exoascus*, application of fertilizers to roots of trees. (D. G. F.)
433. SIEPPARD, J. **Grapes cracking and scalding.** Gard. Chron., 3d ser., vol. 10, No. 239, London, July 25, 1891, p. 101, 1 col. *Ibid*, Aug. 1, No. 240, p. 138, one-half col. Ascribes the injuries to grapes in greenhouses to changes in temperature and moisture and gives remedy. (M. B. W.)

434. SCRIBNER, F. LAMSON. **Some fungous diseases of the grape.** Bull. Agric. Ex. Sta., Univ. of Tenn., vol. 4, No. 4, Knoxville, Oct., 1891 [Dec., 1891], pp. 97-118, figs. 26. Describes black rot of grape, its cause, mycelium, organs of reproduction, parts of vine attacked, conditions favoring disease, treatments, and results. Brown rot with treatment; anthracnose and bird's-eye rot and grape leaf-blight. Refers briefly to general treatment of fungous diseases, the use of powders, liquids, and spraying pumps. (J. F. J.)
435. VIALA, PIERRE. **Monographie du pourridie des vignes et des arbres fruitiers.** Montpellier, 1891, pp. 120, pl. 7. A thesis presented to the Paris Faculty of Science. Deals principally with *Dematophora necatrix*. See review in this JOURNAL, page 149. (E. A. S.)
436. VIALA, PIERRE. **Une maladie des greffes boutures.** Rev. Gén. d. Bot., t. 3, No. 28, Paris, April 15, 1891, pp. 145-149, fig. 1. Gives short description of a disease of grape grafts caused by *Sclerotinia Fuckeliana*, which attacks the freshly cut surfaces of grafts when placed in the packing house previous to planting in the nursery. The fungus forms small wrinkled sclerotia upon the cambium of the cut surfaces, which sclerotia, when cultivated, produce both the *Botrytis* and the *Peziza* form; recommends that the sand used as packing for the grafts be spread out in the sun to dry when not in use in the summer time. (D. G. F.)
437. VIALA, P., and BOYER, G. **Une nouvelle maladie des raisins.** (*Aureobasidium vitis*, n. sp.) Rev. Gén. d. Bot., t. 3, No. 33, Sept. 15, 1891, pp. 369-371, pl. 1. Describes a new disease of the grape clusters appearing in Bourgogne and Thomery since 1882. The disease is present in wet seasons in the month of September or October upon berries almost mature. The vegetative mycelium fills the whole pulp and sends out through the surface numerous yellow branches which bear on the points of basidia situated at their extremity, oval or cylindrical spores. Creates a new genus for the fungus, *Aureobasidium*. (D. G. F.)
438. WAGNER, J. J. **Les principales maladies de la vigne.** Bull. Mens. Soc. Sci. Agric. et Arts, vol. 25, Strasbourg, Feb., 1891, pp. 52-63. Popular account of *Peronospora viticola* and grape anthracnose with treatments. All drawn from one of Prof. Millardet's papers. (E. F. S.)
439. WAITE, M. B. **Results from recent investigations in pear blight.** Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891, p. 259. Notice of paper read before section F, of A. A. A. S., Aug., 1891, giving results of study of disease. Finds motile bacillus grows in nectar of pear blossoms and multiplies there as a saprophyte before entering the meristematic tissue. Announces the fact that blight in the nectar is carried from flower to flower by insects. (D. G. F.)
440. WOBST, K. **Beiträge zur Brombeerflora des Königreichs Sachsen.** Sitzungsbl. und Abb. d. Naturwiss. Gesells. Isis, in Dresden, Jahrg. 1890, Juli bis December, Dresden, 1891, Abh. pp. 50-59. On page 58 a half page is devoted to diseases of *Rubus*. Spot diseases were observed on *R. dumetorum* and *hirtus* produced by *Depazea areolata*, Fuckel and *Ascochyta rubi*, Lasch. Rust caused by *Phragmidium violaceum*, Schultz was found commonly in fall. Pathological conditions induced by insects and other animals are then noticed. (W. T. S.)
441. WURTZ. **The wine industry of Russia.** Repts. from Consuls of U. S. No. 125, Washington, Feb., 1891, pp. 271-283. Refers to diseases of the vine in various provinces. In Bessarabia they are *Erysiphe tuckeri*, and *Peronospora viticola*. No treatment is given the vines (p. 272). In the region of the Crimea the vines are troubled by *Erysiphe*, *Sphaceloma*, and *Peronospora*. Sulphur is used in combating *Erysiphe* on the southern coast (p. 275). In the region of the Caucasus, *Erysiphe* is common (p. 279). In the government of Kootaris, *Erysiphe* appeared in 1854 and killed about one-fourth of the vineyards and affected the production of others. *Peronospora* and *Sphaceloma* have also

caused great loss (p. 280). In the government of Tiflis the common diseases are *Erysiphe*, *Peronospora*, and *Sphaceloma* (p. 281). (J. F. J.)

(See also Nos. 342, 348, 424, 453, 455, 456, 459, 461, 468, 469, 470, 476, 507, 509, 511, 549, 632, and 633.)

D.—DISEASES OF FOREST AND SHADE TREES.

- 442.** ANDERSON, ROBERT. **The canker of the larch.** Jour. Roy. Agric. Soc., 3d ser., vol. 2, part 3, London, Sept. 30, 1891, pp. 643-644. Discusses treatment advised by Carruthers and thinks cutting out would be successful, but that there is no substitute for the larch. (M. B. W.)
- 443.** CARRUTHERS, J. B. **The canker of the larch.** Jour. Roy. Agric. Soc., 3d ser., vol. 2, part 2, London, June 30, 1891, pp. 299-311, fig. 8. A description of *Dasyphylla Willkommii* (*Peziza Willkommii*) and its injuries to the larch with wood cuts illustrating its microscopic characters and distortions of the host. Discusses the nomenclature, history, and occurrence of the fungus in England. The author differs from Ward in that he thinks the germ tube from the spores is able to penetrate sound bark if young, so that a crack or wound is not necessary for the infection. Bark three or four years old is impervious to the fungus. Suggests keeping the fungus in check by cutting out and burning. (M. B. W.)
- 444.** MASTERS, M. T. **Larch canker.** Gard. Chron., 3d ser., vol. 10, No. 241, London, 1891, p. 160, 1 col. Review of article in the Journal of the Royal Agricultural Soc. (See No. 443.) (M. B. W.)
- 445.** MAYR, HEINRICH. **Die Waldungen von Nordamerika, ihre Holzarten, deren Anbau-fähigkeit und forstlicher Werth für Europa im Allgemeinen und Deutschland insbesonders.** München (Riegerische), 1890, pp. 433-434. Enumerates the fungous parasites of forest trees of North America observed in autumns of 1885 and 1887. He includes the following new species. *Puccinidia abietis* n. gen. and n. sp. on *Abies concolor*, *Gymnosporangium Libocedri* on *Libocedrus decurrens*, *Chrysomyxa Libocedri* on *Libocedrus decurrens*, *Aecidium* sp.? on *Fraxinus* sp., *Aecidium deformans* on *Pinus mitis*, *Exoascus quercus-lobatae* on *Quercus lobata*, *Sclerotium irritans* on *Chamaecyparis spheroidea*, *Rhytisma punctiforme* on *Acer macrophyllum*, *Lophodermium (Hysterium) baculiferum* on *Pinus ponderosa*, *P. resinosa*, and *P. laricio*, *L. abietis-concoloris* on *Abies concolor*, *L. infectans* on *Abies concolor*, *Dothidea betulina* on Birch sp., *Microsphaera (Erysiphe) corni* on *Cornus florida*, *Fusicladium* sp.? on *Abies Fraseri*, *Hysteropisis acicola* n. gen. and n. sp. on *Picea Sitkensis*. Includes various other fungi, thirty-four in all, and figures numerous species. Notes effects of *Trametes pini*. *Podosphaera corni* is figured as a *Microsphaera* and several species are very doubtfully determined. (D. G. F.)

E.—DISEASES OF ORNAMENTAL PLANTS.

- 446.** HALSTED, B. D. **An orchid anthracnose.** Garden and Forest, vol. 4, No. 175, New York, July 1, 1891, p. 309. Notes a species of *Gleosporium* on orchids, causing damage in greenhouses. Thinks species distinct from *Gleosporium cinctum*, B. & C., having spores double the latter's size and being straight instead of curved. (D. G. F.)
- 447.** HALSTED, B. D. **Hollyhock diseases.** Garden and Forest, vol. 4, No. 189, New York, Oct. 7, 1891, p. 477, ½ col. Enumerates five different fungous diseases of hollyhock: *Cercospora althaeina*, *Puccina malvacearum*, *Colletotrichum malvarum*, *Phyllosticta althaeina*, and *Septoria Fairmani*. (D. G. F.)
- 448** HALSTED, B. D. **Pelargonium blight.** Garden and Forest, vol. 4, No. 187, New York, Sept. 23, 1891, p. 453. Notes, with popular description, a *Colletotrichum* and an *Aschochyta*. (D. G. F.)

449. HALSTED, B. D. **Rust of carnations.** Garden and Forest, vol. 4, No. 199, New York, Dec. 16, 1891, p. 596, ½ col. Notes occurrence of *Uromyces caryophyllinus* on carnations received from Philadelphia and gives brief description of its appearance. Concludes that a plant once rusted can not be cured. Thinks with healthy plants the disease may be prevented by spraying with copper salts. (J. F. J.)
450. KEAN, ALEXANDER LIVINGSTON. **The lily disease in Bermuda.** Technology Quarterly, vol. 3, No. 3, Boston, Aug., 1890, pp. 253-260. Same as No. 6. (D. G. F.)
451. MASSEE, GEORGE. **A primula disease,** Gard. Chron., 3d ser., vol. 10, No. 256, London, Nov. 21, 1891, p. 626, 2 cols., fig. 1. Gives an account of a disease caused by *Ramularia primule*, Thüm., with a figure and description of the fungus; finds spores unable to germinate in a 1 per cent solution of copper sulphate. (M. B. W.)
452. SMITH, W. G. **Disease of hollyhocks.** Gard. Chron., 3d ser., vol. 9, June 27, 1891, pp. 791-792, 1 col., figs. 2. The writer has obtained the mature fruit of a hollyhock disease caused by *Peziza sclerotiorum*. Gives figures of the fungus. (M. B. W.)
(See also No. 427.)

D.—REMEDIES, PREVENTIVES, APPLIANCES, ETC.

453. ALWOOD, WM. B. **Treatment of diseases of the apple.** Southern Planter, 52d year, No. 3, Richmond, March, 1891, pp. 130-131, 3 cols. Gives results of experiment in treatment of apple scab in Virginia, using one early treatment with lye (1 lb. concentrated lye to 10 gallons of water), followed by three later treatments with Bordeaux mixture containing 2, 4, and 6 pounds of copper sulphate; three later treatments with the Masson mixture (copper sulphate and sodium carbonate), 2, 4, and 6 pounds of copper sulphate being used at the three respective treatments; three later treatments with the ammoniacal solution (3 oz. copper carbonate and 1 quart of ammonia 22° Baumé); three later treatments with potassium sulphide (½ oz. sulphide per gallon of water). Although author was not present at harvest gives statement of owner of orchard where experiment was located which points to superiority of the ammoniacal solution as a prevention of the scab. Thinks treatment with lye had good effects. (D. G. F.)
454. AULD, J. MCQUEEN. **Oxide of iron for foot rot.** Fla. Disp., Farmer and Fruit Grower, new ser., vol. 3, Jacksonville, June 11, 1891, p. 463. Records sequence of healthy condition of trees previously attacked by foot rot following application of oxide of iron 5-15 pounds per tree. (D. G. F.)
455. BEUCKER, GEORGE. **Treatment of grape mildew at the school of agriculture at Montpellier, France.** Annals of Horticulture in N. Am. for 1890, New York, 1891, pp. 82-87. Translation by L. H. Bailey of article in *Progrès Agricole* relative to experiment with fungicides in treatment of grape diseases. The author reports a test of the following fungicides: Bordeaux mixture, verdet (dibasicacetate of copper), improved Bordeaux (ordinary Bordeaux with addition of small amount of ammonia), Bordeaux mixture and glue, Masson mixture, (mixture of carbonate of soda and sulphate of copper), gelatinous hydrocarbonate of copper, aluminium mixture, Skawinski's powder, Skawinski's sulphur, cuprosteatite, sulfosteatite, sulfocyanide of copper, sulphated verdet, hydrated sulphate of copper, sulphated sulphur, cupro-phosphate, and sulphur with cupro-phosphate. Although the mildew did not make its appearance in the vineyard treated the author discusses at some length the nature of the different fungicides, highly recommending the verdet (dibasic-acetate of copper) as the most adhesive copper mixture, remaining upon the leaves until November, last spraying being made July 25. Decides the powders inferior to the liquids, but indicates cuprosteatite as the best powder remedy. (D. G. F.)

456. BOYSEN, T. H. *Diseases of the grape and their prevention.* Rept. N. J. State Board Agric., Trenton, 1891, pp. 349-357. Describes *Peronospora viticola* as affecting grapes in New Jersey; also black rot. Gives method of prevention, advocating spraying with Bordeaux mixture. (J. F. J.)
457. BRUNK, T. L. *Treatment of Cladosporium fulvum.* Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891, p. 265. Notice of a paper read before the Am. Asso. Agric. Coll. and Exper. Sta., August, 1891, announcing the successful use of carbonate of copper [3 oz. per 50 gallons of water, 1 pound of ammonia]. (D. G. F.)
458. CHESTER, F. D. *Fungicides.* Bull. Delaware College Agric. Ex. Sta., Special A, Newark, March, 1890, pp. 4. Gives formula for fungicides. Simple sol. sulphate of copper, Bordeaux mixture, modified eau celeste; and directions for treatment of black rot of grapes, pear scab, pear and apple leaf blight, strawberry leaf blight, raspberry and blackberry anthracnose, brown rot of peach and plum, gooseberry mildew, Irish potato blight. (D. G. F.)
459. CHESTER, F. D. *The leaf blight of the pear and the quince.* Bull. Delaware College Agric. Ex. Sta., Newark, No. 13, July, 1891, pp. 16, pl. 2. Describes disease caused by *Entomosporium maculatum* and gives results of comparative tests of modified eau celeste, Bordeaux mixture, precipitated carbonate of copper, ammoniacal carbonate of copper, carbonate of copper and carbonate of ammonia as preventives of pear leaf-blight. Reports modified eau celeste as giving best results, 85.1 per cent of sound fruit being picked from trees sprayed with it, as opposed to 84.4 for Bordeaux, 80.8 for precipitated carbonate of copper, 78.3 for ammoniated carbonate of copper, 66.3 for carbonate of copper and carbonate of ammonia mixture, and 42.0 for untreated. Records injury to foliage and russet appearance to fruit caused by use of the ammoniated carbonate of copper mixture, and also failure of combined treatment of ammoniated carbonate of copper, and carbonate of copper and carbonate of ammonia mixture to effectually prevent the quince leaf-blight caused by the same fungus. Mentions successful treatment of 1,000 pear trees at Milford, using Bordeaux mixture as preventive of the leaf-blight. (D. G. F.)
460. COUSINS, W. W. *Potato blight prevention.* Gard. Chron., 3d ser., vol. 10, No. 254, London, November, 1891, pp. 558-559, 2½ cols. Records a number of successful treatments with Bordeaux mixture for potato blight (*Peronospora infestans?*). (M. B. W.)
461. CRAIG, JOHN. *Treatment of apple scab, grape and gooseberry mildew.* Bull. Central Ex. Farm, Dept. Agric., Canada, No. 10, Ottawa, April, 1891, pp. 15. After giving an account of losses from the disease, quotes from Galloway and Scribner as to the fungus, *Fusciplodium dendriticum*, and also from former's report of experiments in prevention of disease; gives results of experiments in Canada with fungicides as preventive. Concludes from comparative tests of copper carbonate in suspension in water, ammoniacal solution, copper sulphate and ammonia, copper sulphate dissolved in water, and hyposulphite of soda, that the copper carbonate in suspension gave the best results, even exceeding in efficacy the ammoniacal solution; that the copper sulphate, and ammonia and copper sulphate dissolved in water injured the foliage, while the hyposulphite of soda showed no effects because experiment was ruined by leaf crumpler. Gives formulae for preparation of fungicides and directions for treatment and also method for home preparation of copper carbonate. Discusses treatment of grape mildew (*Peronospora viticola*) and gooseberry mildew. (*Sphaerotheca mors-uva*, B & C.) (D. G. F.)
462. DEGRULLY, L. *Les approvisionnements pour les traitements contre le mildiou.* Progrès Agricole, 8^e ann., Montpellier, Nov. 29, 1891, p. 509, one-eighth page. Refers to treatment of plants with copper preparations, and advises that for 1892 provision be made to treat mildew with sulphate of copper. (J. F. J.)

- 463.** DILLER, ISAAC R. [Report on the Agriculture, etc., of] Florence, [Italy]. Rep'ts from the consuls of U. S., No. 128, Washington, May, 1891, pp. 34-41. Refers (p. 34) to instructions given by Prof. Ferrari, of the Royal Technical Institute, to the soldiers of the farming class on the following subjects: (1) *Peronospora*, its character, development, damages, and remedies. (2) Treatment and method of applying sulphate of copper. (3) Phylloxera, its character and how to prevent its spread. Over 200 soldiers have attended the lectures, and great interest was manifested. (J. F. J.)
- 464.** DOD, C. WOLLEY. Portuguese remedy for vine mildew. Gard. Chron., 3d ser., vol. 9, No. 210, London, Jan. 3, 1891, p. 23, one-third col. Mentions a patented fungicide containing sulphur, sulphate of copper, and lime in the form of powder, for use against the *Peronospora* of the vine. (M. B. W.)
- 465.** FAIRCHILD, D. G. Plant diseases. Ann. of Hort. in N. Am. for 1890, New York, 1891, pp. 78-82. Gives popular account of advances made during the year in the study and prevention of plant diseases. (J. F. J.)
- 466.** GALLOWAY, B. T. A government spraying device. Pacific Rural Press, vol. 40, No. 24, San Francisco, Dec. 13, 1890, p. 499, figs. 8. Reprint with figures of article in JOURNAL OF MYCOLOGY, vol. 6, p. 51. (D. G. F.)
- 467.** GALLOWAY, B. T. Does it pay to spray? Pop. Gardening, vol. 6, No. 31, Buffalo, Oct., 1891, p. 266, 1 col. Gives extract of paper read before the Society for the Promotion of Agricultural Science, Aug., 1891, Washington, D. C. Records results of experiments in Virginia in 1891, with following fungicides as preventives of black rot of the grape: Ammoniacal copper carbonate solution, modified eau celeste, precipitated carbonate of copper solution, copper saccharate, copper carbonate and glue mixture, Bordeaux mixture, copper acetate, and copper chloride mixture. Each of the above fungicides contained approximately the same amount of copper as the ammoniacal solution, 0.1 oz. per gallon of water. Reports results of the copper mixture as increasing the yield of perfect fruit from 20 to 50 per cent, while use of several non-cupric mixtures (potassium sulphide, sodium hyposulphite) gave increase of 20 to 38 per cent. Adds result on experiment with full and half strength of Bordeaux mixture, concluding the two mixtures to stand in relation of 96:86 in effectiveness. Reports experiment with pear leaf-blight and scab with same fungicides, in which the copper mixtures apparently slightly injured fruit and foliage. (D. G. F.)
- 468.** GALLOWAY, B. T. Fungous diseases of the grape and their treatment. Farmers' Bull., No. 4, U. S. Dept. of Agric., Feb., 1891, pp. 12. Gives a brief description of grape *Peronospora*, powdery mildew, black rot, and anthracnose. Describes remedies and gives formulae for making fungicides. Gives methods for treatments and mode of applying fungicides, together with estimated cost of treatments and value of the same. (J. F. J.)
- 469.** GALLOWAY, B. T. Plant diseases and their treatment. Southern Planter, 52d year, Richmond, Nos. 10, 11, Oct., Nov., 1891, pp. 548-550, 615-616. Gives paper read before Farmers' Institute at Charlottesville, Va. A popular address. Sketches the rise of study of plant pathology in America, especially work of the Department of Agriculture. Gives formulae for various fungicides and most approved methods of treatment of black rot, downy mildew, and anthracnose of the grape, potato rot, apple scab, and leaf blight of the pear. Answers numerous queries of audience. (D. G. F.)
- 470.** GALLOWAY, B. T. Plant diseases and their treatment. Ann. Rept. N. J. State Board Agric., vol. 18, Trenton, 1891, pp. 73-89, pl. 2, fig. 4. Mentions results of treatment of grapes for black rot and pear seedlings for leaf-blight. Refers to fungicides and spraying apparatus used, giving formulae and description of apparatus, with instructions as to best methods. Quotes "Yellows" law of Michigan passed in 1881, and briefly describes the disease. (J. F. J.)

471. GALLOWAY, B. T. Recent progress in the treatment of the diseases of pomaceous fruits. Garden and Forest, vol. 4, No. 189, New York, Oct. 7, 1891, pp. 478-479. An address before the American Pomological Society, Sept., 1891. Gives résumé of work done for prevention of pear leaf-blight and apple scab. Gives description of two-horse machines for spraying nursery stock, and directions for treatment of nursery stock and apple trees for apple scab. (D. G. F.) See also Scient. Am. Suppl., vol. 32, N. Y., Oct. 31, 1891, p. 13205.
472. GALLOWAY, B. T. Treatment of nursery stock for leaf blight and powdery mildew. Circular No. 10, Div. of Veg. Path., U. S. Dept. of Agric., 1891, pp. 8, figs. 3. Gives formulae for preparation of fungicides used in treatment; Bordeaux mixture and ammoniacal solution, with instructions for their use and most approved appliances for their application. (D. G. F.)
473. GOETHE, R. Wirkung des Kupferkalkes gegen pfanzliche und thierische Schädlinge. Bericht K. Lehranst. für Obst. und Weinbau, für d. Jahr 1889-'90, Wiesbaden, 1891, pp. 29-30. Refers to a previous paper in the report for 1887-'88. Experiments show that a solution of 2 kg. of copper sulphate and 3 kg. fresh burnt and 4 kg. fresh slackened lime to 100 l. water successfully combat *Fusciplodium pyrinum* and *F. dendriticum*, *Erysiphe pannosa* and *Spharella sentina*, and these can be long held if the trees are sprayed with a solution of half the above strength before flowering and full strength afterwards. *Porthesia chrysorrhæa*, L., and the *Bombyx neustria*, L., become stiff and immovable after eating sprayed leaves. They then pupate. Other insects are enumerated that can be successfully combated with the mixture. (W. T. S.)
474. GREEN, W. J. Treatment of raspberry anthracnose. Bull. Ohio Agric. Ex. Sta., 2nd ser., vol. 4, No. 6, Columbus, Oct., 1891, pp. 119-121. Gives preliminary report on treatment of raspberry anthracnose with weak Bordeaux mixture (copper sulphate 4 lbs., lime 4 lbs., water 50 gallons); thinks results are encouraging, though not to be considered conclusive before a second season. (D. G. F.)
475. HALSTED, B. D. Are fungicides abused? Garden and Forest, vol. 4 No. 178, New York, July 29, 1891, p. 359, $\frac{1}{2}$ col. Points out the imaginary character of any danger from proper use of fungicides. Replies to Dr. Hoskins's objection by statement that fungicides do not contain arsenic. (D. G. F.)
476. HALSTEAD, B. D. The cranberry scald. Garden and Forest, vol. 4, No. 193, Nov. 4, 1891, p. 524. Remarks on the unusual abundance of the scald in New Jersey bogs, and ineffectual use of ordinary fungicides in its prevention. Recommends covering the bogs with thick layer of sand. (D. G. F.)
477. HICKMAN, J. F. Treatment of seed to destroy smut germs. Bull. Ohio Agric. Ex. Sta., 2nd ser., vol. 4, No. 4, Columbus, Aug. 25, 1891, pp. 84-88. Gives results of treatment of wheat for stinking smut or bunt, using various strength of copper sulphate and hot water at varying temperature, after Jensen. Finds the best result obtained from use of hot-water treatment at temperature of 132° to 136° F. and 140° to 144° F. In 5,000 heads from untreated portion, 38 smutted heads were found, while in 5,000 from portions treated with hot water as above none were found. Finds no injury to grains from treatment with copper sulphate 4 oz. per 12 gallons of water. (D. G. F.)
478. HIGH, GEO. M. Spraying grapes with eau celeste. Cult. and Country Gent., vol. 56, Albany, Jan. 29, 1891, pp. 88-89, $\frac{1}{2}$ col. Notes successful use of eau celeste in prevention of grape diseases at Middle Bass Island, Lake Erie. Places ratio of yield of sprayed to unsprayed as $2\frac{1}{2}$ to 3 tons to 1 ton or less. Reports 200 acres as being sprayed with solution and gives account of analysis made of grapes sprayed, showing only trace of copper on clusters sprayed 4 times. (D. F. G.)
479. [HUNN, C. E.] Gooseberry mildew—how prevented. Bull. N. Y. Agric. Ex. Sta., new ser., No. 36, Geneva, Sept., 1891, pp. 645-646. Gives results of success-

- ful treatments of powdery mildew with potassium sulphide, $\frac{1}{2}$ oz. to a gallon of water. (D. G. F.)
480. JONES, L. R. **Black knot of plum and cherry.** Fourth Ann. Rept. Vt. State Agric. Exper. Sta., Burlington, 1890, p. 141. Recommends cutting out and burning all knots as remedy; also advocates State legislation against disease. (D. G. F.)
481. JONES, L. R. **Potato blight and rot.** Bull. Vermont State Ex. Sta., No. 24, Burlington, May, 1891, pp. 19-32, 1 diagram. Records results of an experiment in the treatment of *Phytophthora infestans* by use of Bordeaux mixture. Shows that a single application of the mixture, Aug. 18, after first appearance of the disease, reduced the amount of rotten tubers to 15.3 per cent; two treatments, Aug. 18 and Sept. 16 reduced the amount to 9.7 per cent, as opposed to 53 per cent in the untreated portion of the field. Gives cost of the mixture and description for application. Records negative experiment of attempt to disinfect tubers already affected. Concludes that tubers soaked in copper sulphate were more or less injured, as were also tubers soaked in warm water or in a moist oven, while plants from tubers heated to 106°-108° F. in dry oven for 6 to 24 hours were on an average larger than plants from untreated tubers. Gives data showing that the dry rot appears more commonly at stem than at seed end of tuber. (D. G. F.) (See also 4th Rept. Vt. Agric. Ex. Sta., Burlington, 1890, pp. 131-136.)
482. KELLERMAN, W. A. **Corn smut.** Bull. Kansas State Agric. Ex. Sta., Bot. Dept., No. 23, Manhattan, Aug., 1891, pp. 101-104. Gives results of hothouse and field experiment to determine the possibility of artificially infecting young corn plants with smut from sorghum (*Ustilago Reiliana*) and also with corn smut (*Ustilago zea-mays*), which proved entirely negative. Spraying experiments using Bordeaux mixture, iron chloride, and potassium sulphide, did not prove effective in the prevention of the smut. (D. G. F.)
483. KELLERMAN, W. A. **Second report on fungicides for stinking smut of wheat.** Bull. Kansas State Coll. Agric. Ex. Sta., Bot. Dept., No. 21, Aug., 1891, pp. 47-72, pl. 1. Records second series of experiments in prevention of the stinking smut by the use of fungicides in treatment of seed wheat. Calls attention to discrepancy between Jensen's experiments and Kansas experiments, explaining it partially by discovery of inaccuracy in thermometer used by the author, and thinks further the difference in estimation of smut may aid in the explanation. Discusses the extra increase in yield caused by the treatments and gives results from treatment of seed for 93 plats with 94 controls. Finds 18 of the treatments destroyed all the smut and gave a yield of grain greater than the average of the two adjacent untreated plats, 29 of the treatments decreased amount of smut to less than 1 per cent and gave yield larger than average of the two untreated plats, while 27 of the treatments injured the seed and 2 entirely killed it. Concludes with directions for use of the Jensen hot-water method, which consists in immersing seed wheat in water at 131° F. for 15 minutes. (D. G. F.)
484. KELLERMAN, W. A. **Smut of oats in 1891.** Bull. Kansas State Agric. Coll. Ex. Sta., Bot. Dept. No. 22, August, 1891, pp. 73-81. Estimates the amount of smut in vicinity of Manhattan, Kans., as varying from 3.2 to 7.92 per cent, in 1891. Gives results of series of experiments to test efficacy of immersing seed in various strengths of solution of potassium sulphide for various periods of time as preventive of the smut. Also test of use of flowers of sulphur. Shows great efficacy of potassium sulphide, recommending formula of 1 pound sulphide in 20 gallons of water, seed to be immersed 24 hours; or 2 pounds sulphide in 20 gallons water, seed to be immersed only 8 to 12 hours. To determine more accurately the extra increase, i. e. the increase above that equal to the amount destroyed by the smut, five differ-

- ent treatments of hot water and one of potassium sulphide repeated in six different plats were made. The results show an average extra increase of treated over untreated of at least double the amount of that destroyed by smut in the untreated plats. (D. G. F.)
485. KELLERMAN, W. A. **Smuts of sorghum.** Bull Kansas State Agric. Coll. Ex. Sta., Bot. Dept., No. 23, Aug., 1891, pp. 95-101, pl. 3. Distinguishes two species of sorghum smut in Kansas: Grain smut (*Ustilago sorghi* (Link?) Passerini) and head smut (*Ustilago Reiliiana*, Kuhn), giving distribution in United States as far as known. Records series of experiments in greenhouse, proving possibility of infection of sorghum plants by infection of seed with spores, and series of field experiments with fungicides, which gave contradictory results. (D. G. F.)
486. KELLERMAN, W. A. **Spraying to prevent wheat rust.** Bull. Kansas State Agric. Ex. Sta., Bot. Dept., No. 22, Aug., 1891, pp. 90-93. Gives result of experiment with several varieties of wheat, barley, and oats to ascertain the value of sulphur, potassium sulphide, iron chloride, and the Bordeaux mixture as fungicides in prevention of the rust. Finds, although the attack of the rust was a violent one, none of the treatments prevented the disease perceptibly, Bordeaux mixture possibly excepted, as giving slightly beneficial results. (D. G. F.)
487. KELLERMAN, W. A. **Test of fungicides to prevent loose smut of wheat.** Bull. Kansas State Agric. Coll. Ex. Sta., Bot. Dept., No. 22, Aug., 1891, pp. 81-90. Reports amount of loose smut of wheat on college farm in 1891 as ranging from 0 per cent to 16 per cent. Gives entirely negative results of use of following chemicals as fungicides in its prevention: Bordeaux mixture, eau céleste, potassium bichromate, copper nitrate, copper sulphate, copper chloride, mercuric chloride, Ward's seed manure, and hot water; 109 plats in experiment. (D. G. F.)
488. KILGORE, B. W. **Combination of arsenites with fungicides.** Bull. North Carolina Agric. Ex. Sta., No. 77 b, Technical No. 2, Raleigh, July 1, 1891, pp. 8-11. Gives analyses showing amount of soluble arsenic (As_3O_3) in arsenical mixtures having in solution copperas, copper sulphate, and iron chloride. Finds the injury to the leaves is in direct proportion to the amount of soluble arsenic present in the mixtures and that this amount is increased by the mixing of the above substances with white arsenic, Paris green, or London purple. Shows entire absence of soluble arsenic in mixtures of Paris green or London purple with Bordeaux mixture and records no ill effects to leaves of fig, grape, mulberry, blackberry, peach, pear, and apple from the application of these mixtures. Proportion, 1 pound of arsenite to 100 gallons of mixture. Shows great power of ammonia and sodium carbonate as solvents of arsenites and warns against use of eau céleste with arsenites. (D. G. F.)
489. KINNEY, L. F. **The downy mildew of the potato blight. The Bordeaux mixture as a preventive of the potato blight, experiments with, at this station.** 3d Ann. Rept. R. I. Agric. Ex. Sta., Part II, Providence, Jan., 1891, pp. 137-152 pl. 4. After giving description of disease, copying Scribner, records results of field experiment in its treatment. The experiment was made in field of 30 different varieties of potatoes, and careful estimates of number and weight of tubers from vines sprayed and not sprayed with Bordeaux mixture, formula b, show that late potatoes were much more benefited by spraying than were early varieties. Concludes yield of merchantable tubers was increased 9.9 per cent by spraying three times with Bordeaux mixture, due to increase in size of tubers; that percentage of rotted tubers was 150 per cent greater in untreated than treated vines; that the yield of merchantable potatoes was increased 34.5 per cent by five sprayings and the rot decreased, when correction for varieties is made, by 253.3 per cent in number of affected tubers. (D. G. F.)

- 490.** [? MASTERS, M. T.] **American blight and canker.** Gard. Chron., 3d ser., vol. 9, London, p. 114, $\frac{1}{2}$ col. Gives a formula for a remedy for this disease made up of lime, sulphur, soap, paraffin, boiled oil, and nux vomica. (M. B. W.)
- 491.** [? MASTERS, M. T.] **Apple scab.** Gard. Chron., 3d ser., vol. 9, May 30, 1891, p. 677, $\frac{1}{2}$ col. Note on treatment taken from Bulletin No. 10, Central Expt. Farm, Dept. of Agriculture, Ottawa, Canada. (M. B. W.)
- 492.** [? MASTERS, M. T.] **Bouillie bordelaise and French wines.** Gard. Chron., 3d ser., vol. 9, May 16, 1891, p. 621, $\frac{1}{2}$ col. Refers to report of British consul at Bordeaux, relating to analyses recently made by the Agricultural Society of Gironde of wines made from grapes treated with Bordeaux mixture, showing them to be quite innocuous. (D. G. F.)
- 493.** [? MASTERS, M. T.] **Carbonate of copper.** Gard. Chron., 3d ser., vol. 9, May 30, 1891, p. 677, 6 lines. Directions for making with copper sulphate and sodium carbonate. (M. B. W.)
- 494.** [? MASTERS, M. T.] **Copper compounds for plant disease.** Gard. Chron., 3d ser., vol. 10, Aug. 15, 1891, p. 196, $\frac{1}{2}$ col. Notices their growing importance in horticulture, and the use of Bordeaux mixture to prevent *Peronospora Schachtii* on the sugar beet. (M. B. W.)
- 495.** [? MASTERS, M. T.] **Copper sulphate as a fungicide.** Gard. Chron., 3d ser., vol. 9, May 30, 1891, p. 678, $\frac{1}{2}$ col. Quotes from Burrill, of the Ill. Agric. Expt. Sta., that the copper compounds are efficient remedies for many plant diseases. (M. B. W.)
- 496.** [? MASTERS, M. T.] **Gooseberry mildew, how prevented.** Gard. Chron., 3d ser., vol. 9, June 6, 1891, p. 708, $\frac{1}{2}$ col. Notes the successful treatment of this disease at the New York Agric. Expt. Sta., Geneva, with potassium sulphide. (M. B. W.)
- 497.** [? MASTERS, M. T.] **Lime as a preservative for potatoes and fruit.** Gard. Chron., 3d ser., vol. 10, Oct. 17, 1891, p. 460, $\frac{1}{2}$ col. States that M. Montclair successfully preserved fruits and potatoes from decay by the use of lime. (M. B. W.)
- 498.** [? MASTERS, M. T.] **Mildew.** Gard. Chron., 3d ser., vol. 9, June 6, 1891, p. 708, $\frac{1}{2}$ col. Review of circular by B. T. Galloway; states that 10,000,000 young fruit trees will be treated this year. (M. B. W.)
- 499.** [? MASTERS, M. T.] **Peach blister.** Gard. Chron., 3d ser., vol. 10, Oct. 24, 1891, p. 491, 4 lines. M. de la Bastie, president of the Pomological Society of France, is said to have prevented this by the use of sulphate of copper. (M. B. W.)
- 500.** [? MASTERS, M. T.] **Potato disease and the Bordeaux mixture.** Gard. Chron., 3d ser., vol. 10, Nov. 21, 1891, p. 617, $\frac{1}{2}$ col. Note stating that the treatment by this means was reported successful to the U. S. Dept. of Agriculture. (M. B. W.)
- 501.** [? MASTERS, M. T.] **Potato experiments.** Gard. Chron., 3d ser., vol. 10, Aug. 1, 1891, p. 137, $\frac{1}{2}$ col. Notes the fact that the Royal Agric. Soc. is carrying on experiments with sulphate of copper to prevent disease of potatoes. (M. B. W.)
- 502.** [? MASTERS, M. T.] **Sulphate of copper and potato disease.** Gard. Chron., 3d ser., vol. 9, May 2, 1891, p. 561, $\frac{1}{2}$ col. Says that there is no question of its efficiency and notes successful experiments at the Conn. Agric. Expt. Sta. (M. B. W.)
- 503.** [? MASTERS, M. T.] **The destruction of blight on plum trees.** Gard. Chron., 3d ser., vol. 10, Nov. 21, 1891, p. 618, $\frac{1}{2}$ col. Gives formula for a mixture to spray on plum trees "to destroy blight and insect pests generally." (M. B. W.)
- 504.** [? MASTERS, M. T.] **The potato disease.** Gard. Chron., 3d ser., vol. 10, July 4, 1891, p. 14, 1 $\frac{1}{2}$ cols. A warning to potato-growers to be ready to combat the disease on its first appearance. Recommends Bordeaux mixture and other fungicides. (M. B. W.)
- 505.** [? MASTERS, M. T.] **The potato disease.** Gard. Chron., 3d ser., vol. 10, July 11, 1891, p. 47, $\frac{1}{2}$ col. Recommends for treatment Tait's anti-blight, a dry powder. (M. B. W.)

- 506.** [? MASTERS, M. T.] **The potato disease.** Gard. Chron., 3d ser., vol. 10, Oct. 24, 1891, p. 490, $\frac{1}{2}$ col. States that tubers of potatoes whose foliage had been treated with copper were submitted to chemical analysis, and less than one-hundredth grain of copper per pound was found, the same as in the untreated. (M. B. W.)
- 507. McCARTHY, GERALD.** **Plant diseases and how to combat them.** Bull. North Carolina Agric. Ex. Sta., No. 76, Raleigh, Mar., 1891, pp. 20. Gives popular review of what fungi are, general means of prevention, sanitary, etc. Gives formulæ of fungicides, pointing to error in translating value of hectoliter of the French into 22 gall. English measure, instead of $26\frac{1}{2}$ gall. U. S. standard. Following mixtures described: Simple solution of copper sulphate, simple solution iron sulphate, Bordeaux mixture, modified eau céleste, Burgundy mixture modified (cop. sulphate, $2\frac{1}{2}$ lbs.; sodium carbonate, $3\frac{1}{4}$ lbs.; hard soap, one-half lb., water, 22 gallons), ammoniacal solution, Nessler's powder (cop. sulphate, 1 lb.; air-slaked lime, 2 lbs.; road dust or gypsum, 10 lbs.; water, 1 gallon). Discusses spraying machinery, protection afforded by wooden covering to trellises, and the diseases of black rot (*Læstadia Bidwellii*), mildew (*Peronospora viticola*), anthracnose (*Sphaceloma ampelinum*), black knot (*Plowrightia morbososa*), peach rot (*Monilia fructigena*), apple scab (*Fuscladidium dendriticum*), pear-leaf blight (*Entomosporium maculatum*), pear fire-blight, peach yellows, potato blight (*Phytophthora infestans*), rust of cereals (*Puccinia graminis*), smut of small grains (*Tilletia satvensis* and *Ustilago segetum*), corn smut (*Ustilago maydis*) ergot (*Claviceps purpurea*). (D. G. F.)
- 508. McCARTHY, GERALD.** **Spraying, its value and danger.** Cult. and Country Gent., vol. 56, No. 2000, Albany, June 11, 1891, p. 477, 2 cols. Southern Planter, 52d year, Richmond, Aug., 1891, p. 430. Notice of paper on "copper salts, a possible source of danger" published in Agric. Science, vol. 5, June, 1891, pp. 156-158. See No. 295. (D. G. F.)
- 509. PAMMEL, L. H.** **Treatment of fungus diseases.** Bull. Iowa Agric. Ex. Sta., No. 13 [Ames], Des Moines, May, 1891, pp. 31-51, figs. 22. Summarizes work upon treatment of black rot of grapes and pear leaf-blight; gives formulæ and cost of fungicides; apparatus for their application. Reports the failure of two sprayings of Bordeaux mixture and one of ammoniacal solution to prevent the apple rust (*Rasstelia*) and also the negative results from an experiment in the treatment of plum rust. *Septoria ribis* and *Cercospora angulata* more or less successfully treated with one spraying of Bordeaux and two of ammoniacal solution. Gives results of an experiment in the use of Bordeaux mixture and ammoniacal solution in the treatment of *Cylindrosporium padi*, Karsten (spot disease of cherry.) Brief instructions as to the treatment of apple scab, strawberry leaf-blight, spot disease of the cherry and plum, pear leaf-blight, spot disease of currants, and potato rot. (D. G. F.)
- 510. PEARSON, A. W.** **Copper salts and vegetation.** Garden and Forest, vol. 4, No. 191, New York, Oct. 21, 1891, pp. 498-500, $1\frac{1}{2}$ cols. Shows danger of excessive use of copper salts as fungicides, giving results of treatment of Peachblow potatoes continuously with Bordeaux mixture. Finds in treatment of corn with copper sulphate, of potato seed with Bordeaux mixture, and sweet potatoes in the hotbed that their germination was seriously retarded. Sweet potatoes planted in hotbeds following seed previously treated with Bordeaux mixture failed to sprout. Thinks the surface-feeding plants, weeds, etc., in treated vineyards have been affected by the use of the copper fungicides. (D. G. F.)
- 511. PERIAM, JONATHAN.** **Strawberry leaf-blight fungus.** Prairie Farmer, vol. 63, No. 36, Chicago, September 5, 1891, p. 566, one-half col., fig. 1. Gives popular extract from Bull. Ky. Agric. Ex. Sta. See No. 197. (D. G. F.)
- 512. PETERMANN, M.** **Treatment of potato disease.** Agriculture Science, vol. 5, No. 7, July, 1891, pp. 182-183. Reviewed from Jour. d'Agric. prat., vol. 55, Bruxelles, Jan., 1891, pp. 499-501. Shows effectiveness of Bordeaux mixture (50 kilos

- of cryst. copper sulphate, 25 kilos of lime, and 25 hectoliters of water) and mixture of iron sulphate and lime (50 kilos iron sulphate, 25 kilos of lime, 25 hectoliters of water) in treating *Phytophthora infestans*. The Bordeaux mixture gave the most satisfactory results, and the author feels warranted in recommending provisionally the use of the mixture immediately upon appearance of the disease. An analysis of soil and plant sprayed June 21, made Aug. 4, gave no signs of copper. (D. G. F.)
- 513.** PLOWRIGHT, C. B. **Bordeaux mixture and the potato disease.** Gard. Chron., 3d ser., vol. 10, No. 256, London, Nov. 21, 1891, pp. 609-610, 1½ cols. Describes the experiment of Mr. R. Brown, of Donagmore, Tyrone, in which he disease was successfully treated. (M. B. W.)
- 514.** PLOWRIGHT, C. B. **Messrs Sutton & Sons' experiments with Bordeaux mixture.** Gard. Chron., 3d ser., No. 253, vol. 10, Oct. 23, 1891, p. 523, two-thirds col. States that these experiments in treatment of potato blight were unsuccessful and were opposed to the reports from all countries, and asks the question "why?" (M. B. W.)
- 515.** PLOWRIGHT, C. B. **The Bordeaux mixture; some experiments on the preparation and effects on vegetation of the Bordeaux mixture.** Gard. Chron., 3d ser., vol. 10, No. 255, Nov. 14, 1891, p. 593, 1½ cols. Shows the necessity of having a good quality of fresh lime to decompose all the copper sulphate. (M. B. W.)
- 516.** POWELL, GEO. T. **The scare about sprayed grapes.** Cult. and Country Gent., vol. 56, No. 2020, Albany, Oct. 15, 1891, p. 836, 1 col. Refers to hasty action of New York City board of health in condemning grapes sprayed with the Bordeaux mixture. Thinks condemnation was not warranted. (D. G. F.)
- 517.** SCOVELL, M. A. AND PETER, A. M. **Smut.** First Ann. Rept. Ky. Agric. Ex. Sta., Frankfort, 1890, p. 126. Reports prevention of smut by treating wheat with copper sulphate, 10 pounds of sulphate to 8 gallons of water. Seed wheat was immersed in solution and spread on boards to dry. Treatment reported entirely successful. (D. G. F.)
- 518.** SCRIBNER, F. L. **Does it pay to combat plant diseases by spraying?** Orchard and Garden, vol. 13, Little Silver, N. J., Nov., 1891, p. 185, ½ col. Cites two instances of successful use of Bordeaux mixture, one in which 203 vines were sprayed 8 times to prevent rot, at a total cost of \$6.51, saving \$32.40 worth of grapes; and a second in which 8,450 vines were treated 7 times and the estimated profit shown by control vines were \$1,800. (D. G. F.)
- 519.** [SORAUER, PAUL.] **Sulphostéatite cuprique (Kupferservitriol-Speckstein).** Zeitschr. für Pflanzenkrankheiten, Bd. 1, heft. 1, Stuttgart, 1891, p. 49-50. Notice of a circular of Jean Souheur in Antwerp on the cupric sulphostearite which he introduced in 1890, said to stick very well. Gives account of methods of applying to grapes, tomatoes, and potatoes. (W. T. S.)
- 520.** STAHL, J. M. **Bordeaux mixture for pear leaf-blight.** Cult. and Country Gent. 61st year, Albany, Dec. 31, 1891, p. 1054, 1½ cols. Advocates use of Bordeaux mixture as cure for pear leaf-blight. Quotes from various letters giving good results in its use. Gives method adopted. (J. F. J.)
- 521.** SUMMEY, ELMER E. **Shall we protect our apple crop?** Cult. and Country Gent., 61st year, No. 1998, Albany, May 14, 1891, pp. 396-397, 2 cols., figs. 2. Describes methods of spraying orchards recommended by the Department of Agriculture and others to prevent the apple scab; figures pump and bamboo lance. (D. G. F.)
- 522.** VAN SLYKE, L. L. **Fungicide analysis and valuation.** Cult. and Country Gent., 61st year, No. 2006, Albany, July 9, 1891, p. 556, 2 cols. Gives analyses of commercial copper sulphate, copper carbonate, and Powell's "Copperdine." Shows samples of copper sulphate from the Nichols Chemical Company, New York, contained 99.6 per cent of copper sulphate and samples from various other sources contained from 98.6 to 98.1 per cent of sulphate. Finds in one sample sent from West Park, New York a considerable quantity of free

- sulphuric acid. Finds samples of copper carbonate to contain from 62.79 percent to 88.1 per cent. Shows Powell's "Copperdine," both dry and liquid, does not contain the amount of copper which it purports to. Gives simple tests for purity of copper as complete solution in water, nitric acid, and ammonia. (D. G. F.)
- 523.** VETCH, ROBERT, & SON. *Potato disease.* Gard. Chron., 3d ser., vol. 10, London, Sept. 17, 1891, p. 344, ½ col. Reports successful treatment by copper compounds. (M. B. W.)
- 524.** WASHBURN, F. L. *Practical work with the codling moth and with a combined insecticide and fungicide.* Bull. No. 10, Oregon Agric. Ex. Sta., Portland, April, 1891, pp. 11-13. Gives formulae for combined treatment of fungi and insects. (a) 10 pounds whale oil soap dissolved in 20 gallons of water; (b) 1 pound concentrated lye, 2 pounds sulphur, and 1 gallon of water, heated until thoroughly mixed and dark brown. Add b to a and then heat for half an hour; add 30 gallons of water, and use at a temperature of 120° F. Gives variable results obtained in experiments with above formula. No control trees left untreated to show actual difference, but author thinks the absence of scab on trees treated 5 times shows efficacy of solution as a fungicide. (D. G. F.)
- 525.** WHITE, J. M. [Remarks on spraying.] Rept. N. J. State Board Agric., vol. 18, Trenton, 1891, pp. 102-104. Gives experience in spraying for prevention of fungous diseases and for destroying insects. Advocates using fungicides and insecticides together. (J. F. J.)
- 526.** WILLIS, J. J. *Prevention of apple scab.* Gard. Chron., 3d ser., vol. 9, No. 214 London Jan. 31, 1891, pp. 149-150, 1½ col. Review of article by E. S. Goff in 7th Ann. Rep. of the Agric. Expt. Sta. of the Univ. of Wisconsin. (M. B. W.) (See also Nos. 335, 341, 342, 347, 348, 349, 350, 353, 363, 365, 366, 367, 382, 385, 395, 405, 406, 409, 410, 411, 414, 415, 416, 422, 423, 425, 426, 432, 433, 434, 436, 438, 443, 449, 542, and 560.)

E.—PHYSIOLOGY, BIOLOGY, AND GEOGRAPHICAL DISTRIBUTION.

- 527.** BEYERINCK, W. *Sur l'aliment photogène et l'aliment plastique des bactéries lumineuse.* Arch. Néerlandaises, vol. 24, 4^{me} et 5^{me} livr., Haarlem, 1891, pp. 369-442, fig. 1. An important physiological paper. The following topics are discussed: (1) A glance at the species of phosphorescent bacteria known thus far; (2) methods of research; (3) special precautions; (4) the general conditions of nutrition; (5) plastic equivalents among microbes with carbonized peptone; (6) phenomena of extinction caused by photogenic food; (7) photogenic foods and plastic foods of *Photobacterium phosphorescens*. Inactive and anti-septic matters; effect of different substances on the luminosity and growth *Ph. phosphorescens*; (8) nutrition of *Ph. indicum* and *Ph. lumenosum*; (9) theory of the luminous function; (10) does the light of the bacteria possess any biologic significance? (11) applications to the study of enzymes. (E. F. S.)
- 528.** BOURQUELOT, EM. *Matières sucrées contenues dans les Champignons.* 5. *Genres Cantharellus, Ad., Russula, Pers., et Hygrophorus, Fr.* Bull. Soc. Mycol., France, vol. 7, No. 1, Paris, Mar. 31, 1891, pp. 50-52. 6. *Ascomyctes.* *Ibid.*, No. 2, June 30, 1891, pp. 121-123. *Genre Agaricus, Linné (2^e ser.).* *Ibid.*, No. 3, Sept. 30, 1891, pp. 183-192. Notes the presence of mannite in *Cantharellus tubiformis* (Bull.)—young; *Cantharellus cibarius*, Fr.—dried; *Russula Queletii*, Fr.—young, adult; *Russula cyanoxantha*, (Schaeff.)—adult, dried; *Russula adusta*, (Pers.)—young; *Russula nigricans*, (Bull.)—dried; *Hygrophorus hypothejus*, Fr.—young, adult; *Hygrophorus cossus*, (Sowerb.)—young; and the presence of trehalose in *Hygrophorus hypothejus*, Fr.—young. In No. 2, pp. 183-192 notes presence of mannite in *Bulgaria inquinans* (Pers.)—young; *Peziza ochracea*, Bond—adult; *Peziza venosa* (Pers.)—adult; *Acetabula vulgaris* (Fr.)—young, adult,

dried; *Morchella semilibera* (DC.)—adult; *Elaphomyces granulatus* (Fr.)—adult; *Xylaria polymorpha* (Pers.)—dried. In No. 3, pp. 183–192 notes mannite in *Psalliota sylvicola*, Vitt.—young; *Entoloma sinuatum*, Fr.—adult; *Collybia fusipes*, Bull.—adult and dry; *Collybia dryophila*, Bull.—adult; *Clitocybe socialis*, DC.—young; *Tricholoma terreum*, Schaeff.—adult; *Armillaria mellea*, Fl.—young and adult. Trehalose was found in *Hypoloma lachrymabundum*, Fr.—young; *Pholiota mutabilis*, Schaeff.—young and adult; *Hebeloma elatum*, Batsch.—dry; *Pholiota erebia*, Fr.—young; *Pholiota togularis*, Bull.—young; *Collybia fusipes*, Bull.—young and adult; *Collybia dryophila*, Bull.—adult; *Clitocybe laccata*, Scop.—young; *Clitocybe infundibiformis*, Schaeff.—young; *Tricholoma russula*, Schaeff.—young. (E. A. S.)

- 529.** BOURQUELOT, EM. *Sur la présence de l'amidon dans un champignon appartenant à la famille des Polyporées le Boletus pachypus*, Fr. Bull. Soc. Mycol., France, vol. 7, No. 3, Paris, September 30, 1891, pp. 155–157. The presence of starch was shown by its reaction with iodine, both in the fungus and when extracted by boiling water, and also by its reaction with diastase. The application of iodine to sections of the fungus shows that the starch ceases at the pores. (E. A. S.)

- 530.** BOURQUELOT, EM. *Sur la présence & la disparition du tréhalose dans l'Agaric poivré Lactarius piperatus*, Scop. Bull. Soc. Mycol., France, vol. 7, No. 1, Paris, March 31, 1891, pp. 5–9. Shows the presence of trehalose and the absence of mannite in fresh, young specimens of *Lactarius piperatus*, Scop. When the Agaric is either dried or kept in a fresh state for a few hours the trehalose disappears and mannite is found in its place. When, however, the fungus is subjected to the vapor of chloroform the trehalose is retained. (E. A. S.)

- 531.** BOURQUELOT, EM. *Sur la répartition des matières sucrées dans les différentes parties du Cèpe comestible (Boletus edulis Bull.)* Comptes Rendus, vol. 113. Paris, Nov. 25, 1891, pp. 749–751. After some preliminary observations the author describes his method of analysis and states the grams per kilogram of saccharine matters found in fresh tissue of the various parts as follows:

Stipe.	24.5	Glucose	0.77
Pileus	13.8		0.71
Hymenium (tubes)	none.		none.

Identical results were obtained with *Boletus aurantiacus*, Bull. The analyses justify the common practice among lovers of Boleti of throwing away the tubes and explains the almost exclusive location of dipterous larvæ in the stipe. In the isolation of trehalose there is a double advantage in using only the stipes. (1) the crystallization is easier and the amount greater and (2) the fatty matter of the spores is avoided. (E. F. S.)

- 532.** COBELLi, RUGGERO. *Contribuzione alla Flora micologica della Valle Lagarina*. Verhandl. der k. k. Zool. botan. gesell. in Wien, Bd. 41, II, Quartal. Wien, July, 1891, Abh. pp. 581–584. Gives a résumé of the species of fungi reported from Valle Lagarina in two previous lists, viz: Ifunghi della Valle Lagarina Notizie preliminari, in Michelia, 1881, Patavia No. 7; and Elenco sistematico degli Imeno —, Disco —, Gastero —, Mixomyceti e Tuberacei finora trovati nella Valle Lagarina, in VII Publicazione futta per cura del civico Museo di Rovereto. Roverto, 1885. Now adds 53 species, comprising Hymenomycetes, Discomycetes, and Myxomycetes. In the two first mentioned families spore measurements are given of some species. Gives a summary of the fungi now known from Valle Lagarina as follows: Hymenomycetes, 445; Discomycetes, 49; Gastromycetes, 18; Tuberacei, 2; Myxomycetes, 12; total, 526. (W. T. S.)

- 534.** COOKE, M. C. *Spore diffusion in Phalloidei*. Grevillea, vol. 19, London, March, 1891, pp. 84–86. Discusses the dispersion of spores of Phalloidei and Coprini, especially after passing through the stomachs of insects. Shows that there is no evidence that passage through the insect is necessary for the germination of the spore. (M. B. W.)

- 535.** DELACROIX, G. *Observations sur quelques espèces peu connues.* Bull. Soc. Mycol., France, vol. 7, No. 2. Paris, June 30, 1891, pp. 111-115. Notes the presence of paraphyses in pycnidia of *Dothiciza populea*, Sacc., *Fusicoccum populinum*, Delacr., *Fusicoccum complanatum*, Dela., *Fusicoccum pini* (Pr.), Sacc., *Stilbospora angustata* (Pers.), Sacc. Concludes that in a certain number of pycnidia or spernogonia the appearance of paraphyses follows the emission of spores, and this is perhaps the first step toward the development of the pycnidia into the ascosporous stage. Notes also the discovery of a new fruiting form of *Stephanome strigosum*, (Wallr.) Sacc., and mentions finding the spermogonia of *Uredo Mulleri*, Schröt. (E. A. S.)
- 536.** D'ISTVÁNFFI, DR. GY. *Adatok a gombák physiologai anatomiájához.* (Études relatives à l'anatomie-physiologique des champignons) Természetrájzi Füzetek, vol. 14. Budapest, 1891 (July 10, 1891), pp. 52-67 (Fr. synopsis, 96-106), pl. 2. In higher plants four systems of tissue are distinguished—meristematic, protective, nutrient, and reproductive. The paper sums up the results of an attempt to trace the four systems in the class of fungi. (E. F. S.)
- 539.** GAILLARD, A. *Les hyphopodies mycéliennes des Meliola.* Bull. Soc. Mycol. France, vol. 7, No. 2. Paris, June 30, 1891, pp. 99-101. Describes the opposite and alternate hyphopodies, and gives the opposite the name of capitate, and the alternate of mucronate hyphopodies. Shows that the former are undeveloped perithecia, and the latter mycelial branches arrested in their development. (E. A. S.)
- 540.** GIRARD, ALFRED. *Observations et expériences sur les champignons parasites de l'Acri-dium perigrinum.* Comptes Rend., Soc. Biol., new ser., vol. 3, Paris, June 25, 1891, pp. 493-496. Notes the fungus described in No. — as *Polyrhizium leptophyci*, also a similar fungus on different parts of the same insect and having spores arranged as in *Verticillium*. Suggests that this may be another form of the first species, but does not unite them, as there is insufficient evidence. Both are superficial fungi. Finds a white *Penicillium*, which is undetermined. The author also recounts an infection experiment made by inserting some of the spores of the Isaria of the white worm into the larvæ of the locust. Both the infected and the check larvæ died, but the dead bodies of the former produced a growth of the fungus when kept in a moist place. Keeping the bodies moist is, however, necessary to the appearance of the fungus, indicating that there is little hope of utilizing this Isaria or any other parasite of the same group in combating the locusts of Algeria. There are probably less chances of success with *Entomophthora grylli*, Fresen. (*E. calopteni*, Bessey), as even the few instances of apparent success need further verification. (E. A. S.)
- 541.** GIRARD, ALFRED. *Sur un Isaria, parasite de ver blanc.* Comptes Rend. Soc. Biol., new ser., vol. 3, Paris, April 17, 1891, pp. 236-238. In June, 1890, the author received from Ceauce (Orne) specimens of the "white worm" infested by a parasite, which proved to be an Isaria of doubtful species. It had proved very destructive to the larvæ, spreading so rapidly and killing so many as to decidedly improve vegetation over the areas where the fungus was present. Experiments showed that the spores rapidly communicated the disease to the white worm and to the larvæ of *Tenebrio molitor* both by inoculation and spraying. On artificial media the fungus was easily cultivated, even conquering other fungi that invaded the cultures. The spores retained their germinating power from October until the following March. The culture experiments were made on solid media, but experiments in growing the fungus on liquid media have been undertaken in the hope of facilitating spreading the spores over areas infested with the grubs. (E. A. S.)
- 542.** HALSTED, B. D. *Notes on Monilia fructigena and spore germination.* Bot. Gazette, vol. 16, No. 9, Sept., 1891, pp. 266, 267. Notice of paper read before Bot. Sec. Am. Asso. Agric. Col. and Ex. Sta., Aug., 1891, giving account of failure of

- spores of *Monilia* to germinate in water in presence of bright metallic copper; also in one part ammoniacal solution of copper of usual strength (3 oz. to 22 gallons of water) to 99 parts of water. Suggests dilution of fungicides. (See No. 331.) (D. G. F.)
- 543.** LINDET, L. *Les produites formés pendant la fermentation alcoolique; leur origine leur influence sur la qualité des boissons fermentées.* Rev. gén. Sci. pure et appli., 2 ann., Paris, November 15, 1891, pp. 720-723. The author mentions the following yeasts: *S. cerevisiae*, *elipsoideus*, *conglomeratus*, *minor* Engle, *Marxianus*, levure de Roux, levure caseinse. The following are destitute of endospores, but capable of inducing alcoholic fermentation: *Saccharomyces exigus*-*Torula*, levure de Duclaux, *Mucor circinelloides*. Various bacteria inducing the lactic, butyric, and viscous ferments are also found in the vats; also *Mycoderma vini*, *Bacterium aceti*, *B. Pastorianum*, and finally such molds as *Botrytis cinera*, *Penicillium glaucum*, *Eurotium*, *Dematium pullulans*, *Mucor racemosus*, and *M. mucedo*. The yeast is seldom pure. The stronger or more abundant organisms crowd out the weaker. Foreign organisms are likely to reassert themselves toward the close of the fermentation. These intruders may affect both the quantity and the quality of the product. The means of avoiding secondary products is discussed at some length, also the question whether this is desirable. (E. F. S.)
- 544.** MAGNIN, ANT. *Observations sur le parasitisme et la castration chez les anémones et les euphorbes.* Bull. Scientif. France et Belgique, vol. 23, pt. 2, Paris, August 18, 1891, pp. 412-435, pl. 1, fig. 1. Part I treats of the effect on *Anemone nemorosa* of *Puccinia fusca*, Rehl.; *Urocystis anemones*, Schroet.; *Peronospora pygmaea* Ung.; and *Synchytrium anemones*, (DC.) Wor. The teleutosporic stage of *P. fusca* causes the greatest changes, and always determines a complete castration. Part II treats of the action of the aecidium of *P. fusca* on *A. ranunculoides*, which causes a more or less complete castration manifesting itself in (1) the complete abortion of all the flowers; (2) the abortion of the lateral flowers only; (3) the more or less marked atrophy of the terminal flower, first of the carpels, then of the stamens, and finally of the sepals and the pedicels with virescence and petaloidy, and the production of a sessile staminate flower, like that sometimes observed in certain lateral flowers of healthy plants. Part III treats of the effect of *Uromyces pisi* and other species on *Euphorbia cyparissias*; of *Uromyces scutellatus*, Liv. on *E. verrucosa*, and of *Endophyllum euphorbiaceylvatica*, Wint., on *E. amygdaloidea*. In these cases also there is ordinarily a complete castration. The paper contains a number of observations on changes in color and form exclusive of those falling strictly under the title. The author reports a peculiar secretion and a strong mellifluous odor given off by the aecida and spermogonia of *U. pisi* on *E. cyparissias* at certain hours of the day, especially on cloudy mornings. This is similar to the ordinary nectar of the floral organs and attracts insects in the same way. This odor is strong enough to be noticed at some distance and to lead to the discovery of the fungus. M. Lignier, of Caen, has also noticed "une odeur miellée excessivement intense." (E. F. S.)
- 545.** MANGIN, LOUIS. *Sur la désarticulation des conidies chez les Peronosporées.* Bull. Soc. Bot. France, C. R. des Séances, vol. 38, Paris, 1891, pp. 176-184 and 232-236, pl. 1. See review p. 144. (E. F. S.)
- 546.** MANGIN, L. *Revue annuelle de Botanique.* Rev. gén. Sci. pure et appli., 2 ann., Paris, April 30, 1891, pp. 255-266. Reviews Elfving's "Studien über die einwirkung des Lichtes auf die Pilze," Helsingfors, 1890. (E. F. S.)
- 548.** NORMAN, GEORGE. *Parasitic fungi affecting the higher animals.* Internat. Jour. Micros. and Nat. Sci., third ser. vol. 1, London and New York, July, 1891, pp. 195-204, pl. 2. After preliminary observations and historical remarks the writer treats of *Achorion* producing the disease called *Favus* on mice, dogs, rabbits, cats, fowls, and man, with descriptions and figures of the fungus

and effect on its host. *Trichophyton* is then treated in the same way. It produces the disease called ringworm in man and domestic animals and is often transmitted from animals to man. *Microsporon* is treated briefly. It is rather a rare fungus occurring only in man, producing small brown spots on the skin which do not seriously affect the patient. (M. B. W.)

- 549.** OBERLIN. * * * *Viticulture et météorologie en 1890*. Bull. Mens. Soc. Sci. Agric. et Arts, vol. 25, Strasburg, Feb., 1891, pp. 49-52. *Peronospora viticola* appeared in August, following violent rains. It ravaged all the vineyards of Upper Alsace and if some were spared in Lower Alsace, it was not so in Lorraine. This year "this terrible parasite" appeared for the first time on the berries. Another disease of the berries supposed to be black rot appeared, also a disease of the leaves called Rauschbrand or Laubbrand and thought to be distinct from the effects of the *Peronospora*. *Oidium* was rare in 1890, the two diseases requiring different atmospheric conditions. This last statement was denied in the discussion following the reading of the paper. (E. F. S.)
- 550.** PAMMEL, L. H. *Distribution of some fungi*. Bot. Gazette, vol. 16, No. 9, Sept. 15, 1891., pp. 261-262. Short note on paper read before Bot. Club of A. A. A. S., Aug., 1891. Discussed by L. H. Bailey. (D. G. F.)
- 551.** PATOUILLARD, N. *Remarques sur l'organisation de quelques Champignons exotiques* Bull. Soc. Mycol. France, vol. 7, No. 1, Paris, Mar. 31, 1891, pp. 42-49, pl. 1. Gives notes on the structure and classification of *Michenera artocreas*, Berk. and Curtis, *Emericella variecolor*, Berk. and Br., *Stereum triste*, Berk. and Curt., *Hypocreä impressa*, Mont., *Hypocreä viridans*, Berk. and Curt., *Hypocreä maculaformis*, Berk. and Curt., *Crinula paradox*, Berk and Curt. The first is considered as belonging to the Uredineæ. *Emericella* is said to belong to the Ascomycetes instead of the Basidiomycetes, where it has heretofore been classified. *Stereum triste* represents a sterile form which appears to belong to the genus *Nummularia*. *Hypocreä viridans* has all the characters of the genus *Aschersonia* and should be *A. viridans* (B. and C.) Pat. *Crinula paradox* is identical with *Cronartium asclepiadeum*, Fries, var. *quercuum*, Cooke. (E.A. S.)
- 552.** PLANCHON, LOUIS. *Sur un cas d'empoisonnement par l'Amanita citrina*, Pers. Bull. Soc. Mycol. France, vol. 7, Paris, No. 1, Mar. 31, 1891, pp. 54-65. A detailed account by a physician of the poisoning of an entire family from eating *Amanita citrina*. Gives symptoms, treatment, and a description of the fungus. Recommends further study of the subject by physicians, and that colored drawings, together with a description of the effects of the fungus, be widely distributed among those who are unable to distinguish the poisonous and edible mushrooms. (E. A. S.)
- 553.** SMITH, J. P. *The potato fungus*. Knowledge, vol. 14, London, July, 1891, pp. 135-137, figs. 4. Popular account giving structure and life history. (M. B. W.) (See also Nos. 377, 388, 485, 592, 606, and 633.)

F.—MORPHOLOGY AND CLASSIFICATION OF FUNGI.

A.—GENERAL WORKS.

- 554.** BUCKNALL, CEDRIC. *Index to Parts I-XIII of "The Fungi of the Bristol District."* Proc. Bristol Nat. Soc., new ser., vol. 6, pt. 3, pp. 425-475. An index by genera and species to 1,431 species of fungi noted in vols. II-VI, new series, followed by an index to plates. (M. B. W.)
- 555** COOKE, M. C. *Australian Fungi*. Grevillea, vol. 19, No. 91, London, March, June, 1891, pp. 60-62, 89-92. Descriptions of the following new species of fungi: *Trabutia phyllodiae*, Cke. & Mass.; *Sphaerella nubilosa*, *Erinnella lutea*, Phil.;

Ombrophila trachycarpa, Phil.; *Phyllosticta platylobii*, C. & M.; *Gloeosporium pestiferum*, Cke. & Mass.; *Marsonia deformans*, Cke. & Mass.; *Agaricus (Lep-tonia) melanurus*, Cke. & Mass.; *A. (Pholiola) disruptus*, Cke. & Mass.; *A. (Flammula) velluticeps*, Cke. & Mass.; *Boletus (sub-tomentosi) brunneus*, Cke. & Mass.; *Corticium penetrans*, Cke. & Mass.; *Didymosphaeria Banksiae*, on *Banksia*; *Microthyrium amygdalinum*, Cke. & Mass., on *Eucalyptus amygdalina*; *Conioporus pterospermum*, Cke. & Mass., on *Lepidospermum*; *Cercospora Kennedyae*, Cke. & Mass. on *Kennedyea prostrata*; *C. epicoccioides*, Cke. & Mass., on *Eucalyptus*; *Stilbum corallinum*, Cke. & Mass.; *Apospharia leptospermi*, on *Leptospermum*; *Dothiorella amygdali*; *Septoria lepidospermi*, Cke. & Mass., on *Lepidosperma*; *Melophia phyllachoroidea*, on *Leptospermum laevigatum*; *Leptostromella eucalypti*, Cke. & Mass., on *Eucalyptus*; *Gloeosporium nigricans*, Cke. & Mass., on *Eucalyptus pauciflora*; *G. citri*, Cke. & Mass., on branches of lemon.; *G. epiladii*, Cke. & Mass., on *Cladonia tatraquetrum*; *Entyloma eugeniarum*, Cke. & Mass., on *Eugenia*. (M. B. W.)

556. ELLIS, J. B., and EVERHART, B. M. **New species of fungi from various localities.** Proc. Acad. of Nat. Sci. Phil., Part 1, Phila., Jan. 13, 1891, pp. 76-93. Describes the following species as new: *Phyllosticta lycopidis*, on *Lycopus Canadensis*; *Ph. petasitidis*, on *Petasites palmata*; *Ph. minutissima*, on *Acer glabrum*; *Septoria pteleæ*, on *Ptelea trifoliata*; *S. nubilosa*, on *Helenium autumnale*; *Phyllosticta staphyla*, on *Staphylea trifolia*; *Phy. rhei*, on *Rheum Rhaponticum*; *Phy-parkinsoniae*, on *Parkinsonia aculeata*; *Phy. sophoræ*, on *Sophora speciosa*; *Cornularia ulmicola*, on *Ulmus*; *Spharonema sphaeropsoideum*, on *Fraxinus*; *Schizothyrella hippocastani*, on *Æsculus hippocastanum*; *Haplosporella seriata*, on *Sambucus*; *Vermicularia veratrina*, on *Veratrum viride*; *Sphaeropsis ulmicola*, on *Ulmus*; *Diplodia papillosa*, on *Cornus*; *D. linderae*, on *Lindera Benzoin*; *D. Dearnessii*, on wild *Ribis*; *Leptostromella elastica*, on *Ficus elastica*; *Septoria gummigena*, on hardened gum of cherry trees; *S. dolichospora*, on *Solidago latifolia*; *S. carnea*, on dead leaves of *Carex*; *S. erechtitis*, on *Erechtites hieracifolia*; *S. Canadensis*, Ell. & Davis, on *Solidago Canadensis*; *S. albicans*, on *Saxifraga Pennsylvanica*; *Phleospora reticulata*, on *Lathyrus palustris*; *Stagonospora petasitidis*, on *Petasites palmata*; *St. cyperi*, Ell. & Tracy, on *Cyperus cylindricus*; *St. trifolii*, on *Trifolium repens*; *Coryneum paspali*, on *Paspalum patycaule*; *Gloeosporium carya*, Ell. & Dearness, on *Carya alba*; *Gl. celtidis*, on *Celtis occidentalis*; *Gl. lunatum*, on *Opuntia*; *Gl. saccharinum*, on *Acer saccharinum*; *Gl. Canadense*, on *Quercus alba*; *Gl. ovalisporum*, on *Prunus serotina*; *Cylindrosporium ziziae*, on *Zizia oordata*; *Cy. Dearnessii*, on *Carpinus Americana*; *Cy. cicuta*, on *Cicuta maculata*; *Cy. ceanothi*, on *Ceanothus thyrsiflorus*; *Marsonia nigricans*, on *Salix*; *M. apicalis*, on *Salix lucida*; *Ramularia Canadensis*, on *Carex conoidea*; *R. stolonifera*, on *Cornus stolonifera*; *R. arnialis*, on *Arnica cordifolia*; *R. repens*, on *Aralia racemosa*; *R. dioscoreæ*, on *Discorea villosa*; *R. lethalis*, on *Acer rubrum*; *Peronospora impatientis*, on *Impatiens fulva*; *Titæa Clarkei*, on *Dichiana strumosa*, growing on *Quercus ilicifolia*; *Rhinotrichum muricatum*, on decaying bark; *Zygodesmus tuberculosus*, on decaying roots; *Zy. limoniisporus*, on rotten maple; *Coniosporium subgranulosum*, on decorticated poplar; *Fusicladium angelicæ*, on *Angelica atropurpurea*; *Clasterisporium dothideoides*, on *Shepherdia argentea* and *Artemisia cana*; *Cercospora kalmiae*, on *Kalmia latifolia*; *C. pachyspora*, on *Alisma plantago* and *Peltandra Virginica*; *C. cæspitosa*, on *Eustachys petraea* and *Chloris Startziana*; *C. Davisii*, on *Melilotus alba*; *C. houstonia*, on *Houstonia carulea*; *C. osmorrhizæ*, on *Osmorrhiza longistylis*; *C. acnidæ*, on *Aenida cannabina*; *C. negundinis*, on *Negundo aceroides*; *C. senicionis*, on *Senecio aureus*; *C. infuscans*, on *Rhus venenata*; *C. comandrae*, Ell. & Dearness, on *Comandra umbellata*; *C. mikaniæ*, on *Mikania scandens*; *C. Halstedii*, on *Carya tomentosa*; *C. medicaginis*, on *Medicago denticulata*; *C. lathyrina*, on *Lathyrus latifolius*; *Cercosporella pyrina*,

- on *Pyrus coronaria*; *Fusicladium effusum*, var. *carpincenum*, on *Carpinus Americana*; *Clasterisporium cornigerum*, on *Carpinus* sp.; *Dendryphium muricatum*, on *Prunus Virginiana*; *D. pachysporum*, on *Peniophora*; *Septonema griseo-fuscum*, on *Populus tremuloides*; *Sporidesmium tabacinum*, on *Populus tremuloides*; *Macrosporium podophylli*, on old *Aecidium podophylli*; *Helicosporium diplosporum*, on *Smilax*; *Fusarium volutella*, on *Vitis bipinnata*; *Epidochium olivaceum*, on *Fraxinus* sp.; *Exosporium sociatum*, on *Rhytisma acerinum*, growing on *Acer rubrum*. (D. G. F.)
557. FARLOW, W. G., and SEYMOUR, A. B. **A provisional host index of the fungi of the United States, Part III.** Cambridge, June, 1891, pp. 135-219. Includes in this third and last part the hosts Endogens, Cryptogamia, and animals, together with an addenda of 29 pages and an index of genera. See No. 126 and review, in this JOURNAL, (vol. 7) p. 135. (D. G. F.)
558. GROVE, W. B., and BAGNALL, J. E. **The fungi of Warwickshire.** (Cont. from Vol. XIII, p. 282.) Midland Naturalist, new ser., vol. 14, Birmingham, Jan., Mar., Apr., May, June, Aug., Sept., Oct., 1891, pp. 20-24, 63-66, 93-95, 115-117, 135-138, 190-192, 209-211, 236-238. A list with habitats and brief notes, including Agaricini, Polyporei, Hydnæ, Thelephorei, Clavarei, Tremellinei, Trichogastres, and Nidulariacei. (M. B. W.)
559. HAUER, DR. FRANZ RITTER VON. **Jahresbericht für 1890.** Annalen des K. K. Natur, Hofmuseums, Band 6, No. 1, Wien, May, 1891, Notiz, 1-87, Section b. Botanische Abtheilung, pp. 23-27. Mentions the placing in the exhibition collection of very large specimens of *Peziza coronaria*, Jacq., *Polyporus frondosus*, and other fungi, lichens, etc. (W. T. S.)
560. KELLERMAN, W. A. **Parasitic plants.** Cult. and Country Gent., 61st year, No. 2025, Albany, Nov., 1891, p. 936, & col.. Brief statement of what fungi are and how they attack cultivated plants. Mentions methods of combating diseases. (J. F. J.)
561. MARQUAND, E. D. **The cryptogamic flora of Kelvedon and its neighborhood, together with a few coast species.** Compiled from the herbarium and notes made by the late E. G. Varenne, M. R. C. S. Essex Naturalist, Chelmsford, April, 1891, pp. 1-30. Contains a list of lichens (208 species) and of fungi (136 species) including Agaracini, Uredineæ, Peronosporeæ, and Erysipheæ; no hosts given for the parasitic forms. (M. B. W.)
562. MASSEE, GEORGE. **New fungi from Madagascar.** Journ. of Bot., vol. 29, No. 337, London, Jan., 1891, p. 1-2, pl. 1. Describes the following new genus and species: *Mycodendron* n. gen., *M. paradoxa*, *Agaricus (Clitocybe) pachycephalus*, *Bulgaria trichophora*, *Cenangium congestum*, with figures of each. (M. B. W.)
563. PASSERINI, G. **Diagnosi di funghi nuovi, Nota V.** Atti Reale Accad. Lincei, 4th ser., vol. 7, fase. 2, 2 Sem., comunicazioni pervenuta all' Accad. sino al 19 luglio 1891, Rome, pp. 43-51. Descriptions of following new species: *Protomyces misericorsporus*, on leaves of *Jasminum sambac*; *Anthostomella Quercus*, on dry twigs of *Quercus*; *Laestadia Spartii*, on dead branches of *Spartium junceum*; *Wallrothiella pusilla*, on rotten trunks; *Sphaerella alba*, on languishing leaves of *Populus alba*; *Epicymatia Modonia*, on *Stilbospora Modonia* on dead branches of *Castanea vesca*; *Melanopsmamma rosæ*, on decayed branches of Rose; *Leptosphaeria camphorata*, on dry stems of *Artemisia camphorata*; *L. faginea*, on dead twigs of Beech; *L. punctiformis*, on decayed stems of *Zea Mays*; *L. vaginæ*, on decaying sheaths of *Phragmites vulgaris*; *Melanomma leptosphaerioides*, on dry naked stems of *Pulicaria viscosa*; *M. epileuecum*, on old bark of *Ulmus campestris*; *Massarina microspora*, on dead branches of *Pinus sylvestris*; *Metasphearia spurca*, on dry umbelliferous stems, perhaps *Daucus Carota*; *M. clavulata*, on decayed culms of *Scirpus Holoschoenus*; *Pleosphaerulina* gen. n. *P. rosicola*, on dry branches of *Rosa canina*; *Zignella ligustrina*, on dry branches of *Ligustrum vulgare*, together with *Ostropa cinerea*; *Pleospora verbenicola*, on dry stems of *Verbena officinalis*; *Curreya ulmicola*, on decayed branches of *Ulmus*

montana; *Lophiostoma clarulatum*, on dry branches of *Spartium junceum*; *Ocellaria pulicaria*, on dry stems of *Pulicaria viscosa*; *Phoma pulicaria*, on branchlets of *Pulicaria viscosa*; *Phyllosticta advena*, on languishing leaves of *Rhamnus corymbosus*; cult. in garden under name of *Guevina Avellana*; *Ph. ulmaria*, on leaves of *Ulmus campestris*; *Ph. cinerea*, on languishing leaves of *Populus alba*; *Phoma cladophila*, on dead branches of *Elaeagnus reflexa*; *Ph. pycnocephali*, on dead stems of *Carduus pycnocephalus*; *Ph. lichenis*, on sterile thallus of some lichen, perhaps *Parmelia pulverulenta*, on branches of *Fraxinus*; *Macrophoma cylindrica*, on dead branchlets of *Pulicaria viscosa*; *Aposphaeria leptosphaerioides*, on dead stems of *Pulicaria viscosa*; *Coniothyrium tubercularia*, on sporodochia of a species of *Tubercularia* on branches of *Calycanthus praecox*; *Diplodia carpogena*, on decaying pericarp of *Aesculus Hip. pocastanum*; *D. rhodophila*, on dry branches of cultivated rose; *D. microsporella*, Sacc., var. *cordia*, on dead branchlets of *Cordia Myxa*; *D. australis*, on dead branchlets of *Celtis australis*; *D. emphisphaeroides*, on oak bark; *Botryodiplodia asculina*, on dead branches of *Aesculus Hippocastanum*; *Ascochyta decipiens*, on stems and branches of *Antirrhinum majus*; *Hendersonia subcorticata*, on detached and still hanging bark of *Pirus malus*; *H. candida*, on languishing leaves of *Populus alba*; *Dichomera persica*, on cut off stump of peach; *Rhabdospora jasmini*, on frozen branches of *Jasminum officinalis*; *Rh. lagerstroamiae*, on denuded dry branches of *Lagerstroemia Indica*; *Rh. muhlembeckiae*, on branches of *Muhlembeckia complexa*; *Pleococcum Holoschoeni*, on dead stems of *Scirpus Holoschoenus*; *Gloeosporium cerei*, on *Cereus triangularis*; *Pestalozzia (Pestalozziana, sub gen. nov.) artemisia*, on dry stems of *Artemisia camphorata*; *Coniothecium cupularia*, on dry stems of *Inula viscosa*; *Speira ulicis*, on dry branches of *Ulex Europeus*; *Tubercularia calycanthi*, on dead branches of *Calycanthus praecox*; *T. rhodophyla* [sic.], on dead branches of cultivated rose; *Fusarium robiniae*, on fallen branch of *Robinia pseudacacia*; *F. celtidis*, on dead branches of *Celtis australis*; *Chatostroma Holoschoeni*, on decayed leaves of *Scirpus Holoschoenus*. (W. T. S.)

564. PECK, CHARLES H. Annual report of the state botanist of the state of New York. 44th Report N. Y. State Mus. Nat. Hist., Albany, 1891, pp. 75, 1, 4, pl. 4. Contains descriptions of many new species of fungi both by himself and Mary E. Banning. The last are in a manuscript volume of the Fungi of Maryland, illustrated by colored plates. The genus *Tricholoma* of New York is monographed in the same manner as genera in previous reports. For notice see under head of Reviews, this JOURNAL, (vol. 7) p. 147. (J. F. J.)

565. SACCARDO, P. A. Sur les règles à suivre dans la description des espèces végétales et surtout des cryptogames. Bull. Soc. Mycol., France, vol. 7, Paris, June 30, 1891, pp. 73-75. Gives a digest of rules to be used in describing fungi. They relate to modes of expression, language, citation of authority, writing of measurement, expression of scientific names, standard of colors, and names for the fruit of different groups. (E. A. S.)

566. SOMERS, J. Nova Scotian fungi. Proc. and Trans. Nova Scotian Inst. Nat. Sci., vol. 7, pt. 4, Halifax, 1890, issued 1891, pp. 464-466. Contains enumeration of fungi of Nova Scotia begun in vol. 7, part I, p. 18 of Transactions. Gives 16 species, none new. (D. G. F.)

See also No. 644.

B.—CHYTRIDIACEÆ.

567. FISCHER, DR. ALFRED. Phycomycetes. Rabenhorst's Kryptogamen-Flora, Band I, Abth. IV, Pilze: Lief. 45, 46, 47. Leipzig, 1892 (1891), pp. 1-192, many figs. See review this journal, (vol. 7) p. 135. (E. F. S.)

See also Nos. 371, 423, 544.

C.—OÖMYCETES.

568. HALSTED, B. D. Notes upon *Peronosporæ* for 1891. Bot. Gaz., vol. 16, No. 12, Dec. 15, 1891, pp. 338-340. Gives notes on the following species: *Phytophthora infestans*, *Sclerospora graminicola*, *Plasmopara viticola*, *Plasmopara pygmaea*, *Plasmopara geranii*, *Bremia lactucae*, *Peronospora parasitica*, *Peronospora Cubensis*, *Peronospora effusa*, *P. potentillae*, *Cystopus Ipomæ panduratae* [sic.], *C. candidus*, *C. portulacæ*. Notes *Alyssum maritimum* as new host for *P. parasitica*; and *Potentilla grandiflora* as new host to the country for *P. potentillae*. (D. G. F.)
569. MASSALONGO, C. Sull' alterazione di colore dei fiori dell' *Amarantus retroflexus* infetti dalle oospore di *Cystopus Bliti*, D'By. Nuovo Giorn. Bot. Ital., vol. 23, No. 1, Firenze, 8 gennaio 1891, pp. 165-167. Records the finding of oöspores of *Cystopus bliti* D'By. in inflorescences of *Amarantus retroflexus*. The flowers attacked assume a more or less pronounced red color and are thus rendered more conspicuous. The author suggests that the oöspores formed in these reddish flowers are perhaps distributed by animals, while those occurring as usual in leaves are distributed by the wind; suggests also that here is an analogy to heterocarpism in higher plants, except that the difference between the oöspores is not a morphological one, but simply one of different comportment in regard to the organs of the host plant attacked. (W. T. S.)
570. SPAGAZZINI, CAROLUS. Phycomycetæ Argentineæ. Revista Argentina de Hist. Nat., vol. 1, Buenos Aires, Feb., 1891, pp. 28-38. Gives list of species of Phycomycetes, and describes new species as follows: *Mucor mucedo* var. *a* *b*, *M. platensis*, *Cystopus platensis*, on leaves of *Bœrhaavia hirsuta*, *Chlospora* n. gen., *C. vastatrix*, in bulbs of *Allium coepa*; *Peronospora nicotiana*, on leaves of *Nicotiana longiflora*. The species in the list, 37 in all, are accompanied by notes on hosts, measurements of spores, etc. (J. F. J.)
(See also Nos. 371, 377, 545, and 567.)

D.—ZYGOMYCETES.

(See Nos. 543, 567 and 570.)

E.—BASIDIOMYCETES.

571. ALLEN, A. and SPIERS, W. British Agaricini. Internat. Jour. Micros., and Nat. Sci., 3d ser., vol. 1, London and New York, Aug., 1891, p. 233, 7 lines. Notes that there are 1,400 species in the British Isles, 134 edible and 30 poisonous. (M. B. W.)
572. COOKE, M. C. Additions to *Dædalea*. Grevillea, vol. 19, No. 92, London, June, 1891, pp. 92-93. Descriptions of five new species of *Dædalea* from Herb. Berk., *D. Eatoni*, Berk., *D. subcongener*, Berk., *D. flabellum*, Berk., *D. Andamanni*, Berk., *D. Mulleri*, Berk. (M. B. W.)
573. COOKE, M. C. Additions to *Merulius*. Grevillea, vol. 19, June, 1891, p. 108-109. Describes as new *Merulius sordidus*, B. & C., *M. rimosus*, Berk. in herb., *M. pelliculosus*, and states that *M. pallens*, Schwein. (not of Berkeley), is the same as *M. corinum*; and *M. terrestris*, B. & Br. (undescribed), is the same as *M. brassicafolius*. (M. B. W.)
574. COOKE, M. C. A new subgenus of *Agaricus*. Grevillea, vol. 19, June, 1891, pp. 104-405. Describes the new subgenus *Metraria* founded on a species from Australia, which is also described; *Agaricus (Metraria) insignis*, C. & M. (M. B. W.)
575. COOKE, M. C. British Thelephorei. Grevillea, vol. 19, March, 1891, pp. 64-67. Synopsis of the genus *Stereum* with descriptions of the species. (M. B. W.)

- 576.** COOKE, M. C. *Favolus* and *Laschia*. Grevillea, vol. 19, No. 92, London, June, 1891, p. 105. Original description of the following species from herb. Berkeley. *Favolus subgelatinosus*, Berk., *Laschia decurrentis*, Berk. & C., *L. flabellula*, B. & C. in herb., *L. lurida*, Cesati, in Myct. Bon., *Glaosporus corrugatus*, Berk. (M. B. W.)
- 577.** COOKE, M. C. *Irpea addenda*. Grevillea, vol. 19, No. 92, London, p. 109. Describes the following new species: *Irpea decurrentis*, Berk. in herb., *I. crispatus*, Berk. in herb., *I. modestus*, Berk., in herb., *I. clathratus*, Berk. in herb., *I. decolorans*, B. & C. in herb. (M. B. W.)
- 578.** COOKE, M. C. *Lachnocladium*. Grevillea, vol. 19, No. 92, London, p. 93. Note on affinities. (M. B. W.)
- 579.** COOKE, M. C. Some omitted diagnoses. Grevillea, vol. 19, No. 92, London, pp. 103-104. Description of fungi omitted from Saccardo's Sylloge: *Agaricus (Innocybe) holophlebius*, Berk., in herb., *Thelophora griseozonata*, Cke. Rav. Fun. Amer. No. 444. (M. B. W.)
- 580.** COOKE, C. M. Species of *Hydnæi*. Additimenta to Saccardo's Sylloge. Grevillea, vol. 20, No. 93. Sept., 1891, pp. 1-2. Describes the following new species: *Hydnnum peroxydatum*, Berk., *H. analogum*, Berk. in herb., *H. cohorens*, B. & C., *H. scariosum*, B. & Br., *H. lachnodontium*, Berk., *H. Lirioidendri*, B. & C. in herb., *H. artocreas*, B. & C. in herb., *H. Agressii*, Berk. in herb. with notes on *H. microdon*, Pers., *H. Berkeleyi*, Curtis, *H. alliceps*, Berk. & Rav., *H. herbicolunt*, Ellis, *H. trechodontium*, Berk., and states that *H. luteo-virens* appears to be an *Irpea*. Eight species of *Radulum* are mentioned; *R. Emerici*, Berk. and *R. Neilgherrensis*, Berk. in herb., are described. Five species of *Phlebia* are mentioned, of which *P. spilomea*, Berk. & Curt., and *P. deglubens*, Berk. and Curt., are described. *Odontia albominiata*, B. & C., is said to be *Hydnnum cinnabarinum*, Schwein., and *O. scopinella*, Berk., not a *Hydnnum*, as described in Sacc. Syll. *Kneifzia tinctor*, Berk. in herb., and *K. subtilis*, Berk., in herb., are described as new, and *K. typhae*, Berk. in herb., said to be *Corticium typhae*. (M. B. W.)
- 581.** COOKE, M. C. Trametes and its allies. Grevillea, vol. 19, No. 92, June, 1891, pp. 98-103. Divides the genus as treated in Saccardo's Sylloge into sections, giving a list of the species in each; five species have been transferred to the genus *Sclerodepsis* in a previous number. The following are described for the first time: *Trametes Dickinsii*, Berk. in herb., *T. gausapata*, Berk. and Rav. in herb., *T. Burchelli*, Berk. in herb., *T. adelphica*, *Hexagonia laevis*, Berk. in herb., *Hexagonia tenuis*, Hook. var. *subtenuis*, Berk. in herb. (M. B. W.)
- 582.** COOKE, M. C. Two Australian fungi. Grevillea, vol. 19, No. 91, Mar. 1891, pp. 81-83). Describes as new *Agaricus (Amanita) strobilaceus* and *Lasiospharia larvaespura*, Cke. and Mass. (M. B. W.)
- 583.** COOKE, M. C. Two Japanese edible fungi. Grevillea, vol. 19, No. 91, Mar., 1891, pp. 62-64. Reprints an article by Mr. N. Tanaka in the Botanical Magazine of Japan, in which two new species of *Lactarius* are described, *L. Hatsudake* and *L. Akahatsu*. (M. B. W.)
584. [CRANE, D. C.] Growing mushrooms in winter. Rept. N. J. State Board Agric., vol. 18, Trenton, 1891, pp. 478-479. Refers to experiments of a farmer near Elizabeth, N. J., in raising mushrooms, describing the hotbed. No results mentioned. (J. F. J.)
- 585.** DE SEYNES, J. Conidies de l'*Hydnnum coraloides*, Scop. Bull. Soc. Mycol. France, vol. 7, Paris, June 30, 1891, pp. 76-80, figs. 8. Describes conidia of *Hydnnum coraloides*, Scop., and compares them with the normal tetraspores, and with conidia of *Hydnnum erinaceus*, Bull., and *Polyporus biennis*, Bull. The conidia are endocellular and of two kinds. (E. A. S.)
- 586.** FLORIDA AGRICULTURIST. Underground oranges. Fla. Agriculturist, vol. 18, No. 47, De Land, Dec. 2, 1891, p. 651. Notes determination of peculiar underground bulbs resembling oranges as really *Phallus impudicus*. (D. G. F.)

- 587.** GODFRIN, J. Contributions à la flore mycologique des environs de Nancy. Catalogue méthodique des Champignons Basidiés récoltés en 1889-'90. Bull. Soc. Mycol. France, vol. 7, Paris, June 30, 1891, pp.124-136. A catalogue of 160 Hymenomycetes. (E. A. S.)
- 588.** HENNINGS P. Note micologiche. Malpighia, anno V. fasc. 1-2, Genova, 1891, pp. 89. Part I consists of following corrections of some errors regarding some *Polyporeæ* collected by Balansa in 1884 in Paraguay, and for the most part described as new by Spegazzini. *Hexagona Friesiana*, Speg., F. guar. Pug. I. p., 55 = *Polyporus umbonatus*, Fr., *Thelophora (Craterellus) spassoides*, Speg., 1. c., p. 69 = *Polyporus Warmingii*, Berk., *Polyporussub tropicalis*, Speg., = *P. gilvus*, Fr., *P. subgilvus* Speg., = *P. gilvus*, Fr., *P. Landii*, Fr., = *P. occidentalis*, Kalch., *P. Drummondii*, Klotzsch forma *setulosa* Speg., = *P. versalilis*, Berk. In part II. of the paper the following new species and varieties are described: *Acidium Aschersonianum*, on leaves of *Kundmannia sicula* from Malta; *Uromyces Schweinfurthii*, on branches of *Acacia Ehrenbergianæ* from Arabia Felix; *Schroeteria Cissi*, (DC.) De T., var. *Arabica*, on petioles and branches of *Cissus quadrangularis* from Arabia Felix. (W. T. S.)
- 589.** MASSEE, GEORGE. New or imperfectly known Gastromycetes. Grevillea, vol. 19, No. 92, London, June, 1891, pp. 94-98. Describes the following new species and new genera. *Mutinus fraxinus*, Berk. in herb. *Crucibulum simile*, *Tulostoma Wrightii*, Berk. in herb. *T. album*, *Hydnangium Tasmanicum*, Kalchbr. in herb. *Secotium leucocephalum*, S. Gunnii, Berk. in herb. *Gyrophragmium Texense* (B. & C.), Mass., *Calostoma aruginosa*, *Protoglossum*, nov. gen., *P. luteum*, *Gymnoglossum*, nov. gen. *G. stipitatum*. (M. B. W.)
- 590.** [?MASTERS, M. T.] Mushrooms. Gard. Chron., 3d ser., vol. 10, London, September 26, 1891, p. 368, one-half col. Describes a method of culture. (M. B. W.)
- 591.** OLIVIER, ERNEST. Les ronds de sorciers. Rev. scientif., Bourbonnaise, 4^e anñ., Moulins, August 15, 1891, p. 170. Describes the appearance of sorcerers rings in meadows in June. These often persist several years, and increase in size to the vexation of the farmer. The grass in the interior of the ring is yellow, but that on the exterior, over a breadth of 20-30 centimeters, is always remarkably green and vigorous. These rings are due to *Agaricus campestris*, etc. (E. F. S.)
- 592.** PATOUILARD, N. *Polyporus bambusinus*, nouveau polypore conidifère. Bull. Soc. Mycol. France, vol. 7, Paris, June 30, 1891, pp. 101-103. Describes the new species, *Polyporus bambusinus* under three forms dimidiate, nodulose, and resupinate. The first and third have a conidial fructification, and neither normal basidia nor cystidia can be found in the resupinate form. (E. A. S.)
- 593.** ROLLAND, LÉON. Essai d'un calendrier des Champignons comestibles des environs de Paris. Bul. Soc. Mycol. France, vol. 7, Paris, March 31, 1891, pp. 10-14, pl. 2. Describes external appearance, and gives habitat and date of *Paxillus involutus*, (Batsch) Fr., *Lepiota procera*, Scop. *Lactarius volemus*, Fr. *Lactarius deliciosus*, (L.) Fr. *Lactarius rufus*, (Scop.) Fr. (E. A. S.)
- 594.** ROLLAND, LÉON. Excursions mycologiques dans les Pyrénées et les Alpes-Maritimes. Bull. Soc. Mycol. France, vol. 7, Paris, June 30, 1891, pp. 84-97. Gives lists of fungi collected at Cauterets and in the province of Var on the shores of the gulf Juan. The following new species are described: *Omphalina bibulacea*, var. *citricolor*; *Tricholoma saponaceum*, var. *laredana*; *Blitrydium carlestiae*, de Not. *Ceratostoma phœnicis*. (E. A. S.)
- 595.** ROLLAND, LÉON. Une visite au Musée Barla. Bull. Soc. Mycol. France, vol. 7, Paris, March 31, 1891, pp. 66-72. Describes M. Barla's collection of plaster casts of fleshy fungi at Nice, and gives a catalogue of a large number of the species modeled. In a footnote are given detailed directions for making the models. (E. A. S.)
- 596.** SMITH, J. P. The mushroom. Knowledge, vol. 14, 73, London, November 2, 1891, figs. 6. A popular account of *Agaricus campestris*, with description of its anatomy and life history. (M. B. W.)

- 597.** SPEGGAZINI, CAROLO. *Fungi guaranitici nonnulli novi v. critici*. Revista Argentina Hist. Nat., vol. 1, Buenos Aires, April, 1891; pp. 101-111, June, 1891, pp. 168-177. Notes on Hymenomycetes describing the following new species: *Marasmius balansæ*, *Poria subargentea*, *Favolus elegantissimus*, *F. daedaleoides*, *F. Harioti*, *Pterula humilis*. The species, 31 in all, are accompanied by notes and diagnostic characters. Part 2 mentions various species of Hymenomycetes, Gastromycetes, Myxomycetes and Hyperdermeae. The following are described as new species: *Lanopila guaranitica*, *Ustilago juncicola* in ovaries of *Juncus Chamissoni*, *Entyloma nectrioides* on leaves of a species of Leguminosæ, *Puccinia chloridis* on leaves of *Chloris* sp., *P. macrocephala* on leaves of Convolvulaceæ, *Uromyces* ? *cyperinus* on leaves of Cyperaceæ, *U. aeruginosus* on leaves of Sapindaceæ (?), *Uredo carnosa* on leaves of Orchidaceæ. Notes are given on other species. (J. F. J.)
- 598.** TAYLOR, THOMAS. *Mushrooms of the United States*. U. S. Dept. Agric., Rept. for 1890, pp. 366-373, pl. 5. Gives colored figures of eight edible and twelve poisonous mushrooms. Gives directions for the culture of various species, with figures of houses and beds for their cultivation. Also various recipes for their preparation for the table. Issued as a reprint with the title "Food Products; eight edible and twelve poisonous mushrooms of the United States, with directions for the culture and culinary preparation of the edible species." pp. 16, pls. 5. (D. G. F.)
- 599.** ZOPF, W. *Ueber die Flora und die Vegetation Spitzbergens—3 Thallophyten*. Naturwissens. Wochenschr., vol. 6, Berlin, Dec. 13, 1891, p. 508. Notes the occurrence of *Lycoperdon furfuraceum*, Schaeff. (J. F. J.)
(See also Nos. 334, 336, 337, 445, 528, 529, 530, 531, 562, 614, and 637.)

F.—UREDINEÆ.

- 600.** ARTHUR, J. C. *Notes on Uredineæ*. Bot. Gazette, vol. 16, No. 8, Aug. 15, 1891, pp. 225-227. Discusses synonymy of *Puccinia stipæ*, considering the publication of the species in 1884 by the author as prior to collection by Hora of the identical species named by Opiz in 1852. Prefers *Puccinia stipæ* (Opiz) Arthur, as correct writing of the name. Draws attention to the name *Puccinia ornata*, Harkness, as being preoccupied, and suggests the name *P. medusæoides*. [It may be remarked, however, that Harkness's species, *P. ornata* was previously described by Winter as *P. appendiculata* on Bignoniacous plant from Mexico. See Sacc. Sylloge, vol. 7, part 2, p. 727, No. 2552.] Points out an error in the measurement of the teleutospores of *Uromyces perigynius*, Halsted, making their true dimensions 12-18 x 24-30v. Mentions work of Dietel in Hedwigia, vol. 28 (1889), p. 22, demonstrating *Uromyces caricis*, Peck, to be the uredo of *Puccinia caricis-strictæ*, Dietl. Reports the discovery of the uredospores of *Uromyces perigynius* and teleutospores of *Coleosporium viburni*. Describes *Puccinia cyperi* n. sp. on *Cyperus Schweinitzii*, and *C. strigosus*; *Uromyces gentianæ* n. sp. on *Gentiana quinquefolia* var. *occidentalis*. (D. G. F.)
- 601.** ATKINSON, GEO. F. *A new Ravenelia from Alabama*. Bot. Gazette, vol. 16, No. 11, Nov., 1891, pp. 313-314. Describes as new *Ravenelia cassiæcola*, upon stems, leaves and pods of *Cassia nictitans*. Considered specifically distinct from *R. strictica*, Berk. & Br., No. 554, Myc. Univ., *R. glandulæformis*, Berk. & Curt., No. 1251, Myc. Univ., and *R. texanus*, Ell. & Galw. (D. G. F.)
- 602.** COCKERELL, T. D. A. *Additions to the fauna and flora of Jamaica*. Jour. Insti. Jamaica, vol. 1, Kingston, Nov., 1891, p. 32. *Uredo Vialæ*, Lagerheim, on vine leaves, is reported from near Rockport. (E. F. S.)
- 603.** GRAZIANA, A. *Deux champignons parasites des feuilles de coca*. Bull. Soc. Mycol. France, vol. 7, Paris, Sept. 30, 1891, pp. 152-153, pl. 1. Describes *Uredo erythro-*

xylonis on *Erythroxylon coca* from Peru and Bolivia, and *Phyllosticta erythroxylonis* on the same host from Bolivia. (E. A. S.)
(See also, Nos. 401, 402, 418, 445, 544, 588, and 597.)

G.—USTILAGINEÆ.

(See Nos. 402, 558 and 597.)

H.—ASCOMYCETES.

I.—*Gymnoasci*.

(See No. 432, 445.)

II.—*Perisporiaceæ*.

- 604.** CHATIN, A. Contribution à l'histoire botanique de la truffe, *Kammé de Damas* (*Terfezia Claveryi*). Comptes Rendus, vol. 113, Paris, Sept. 14, 1891, pp. 381-384. The author had previously described a var. *arabica* of *T. boudieri*, and now finds a new species which is widely distributed. It is a remarkable species and represents the type of the section characterized by reticulate and non-verrucose spores. The weight of the tubers averages 50 to 130 grams. (E. F. S.)
- 605.** CHATIN, A. Contribution à l'histoire botanique de la truffe (Quatrième note)—*Kamés de Bagdad* (*Terfezia Hafizi et Terfezia Metaxasi*) et de Smyrne (*Terfezia leonis*). Comptes Rendus, vol. 113, Paris, Oct. 26, 1891, pp. 530-534. As in case of the Terfaz of Algeria, the kamé of Smyrna is eaten mixed with meat and eggs and cooked in butter or oil. A study of the immature spores of this species shows that *T. boudieri* is distinct, and not an immature form of *T. leonis*, as Tulasne conjectured. The latter occurs also in Sicily, near Naples, and in Spain. (E. F. S.)
- 606.** CHATIN, A. Contribution à l'histoire naturelle de la truffe—Parallèle entre les Terfaz ou Kamés (*Terfezia Tirmania*) d'Afrique et d'Asie et les truffes d'Europe. Comptes Rendus, vol. 113, Paris, Nov. 2, 1891, pp. 582-586. Discusses geographical distribution, climate, soil, host plants, time of maturity, depth in the soil, mode of gathering, culture, color, odor, taste, periderm, flesh or gelba, sporangia, spores, and chemical composition of truffles and terfazias. The latter are essentially African and Asiatic, fungi of hot climates, and are only represented in Southern Europe. Both prefer soils rich in lime and oxide of iron. Truffles grow at depths of 10-15 cm., but sometimes 40-50 cm. They rarely approach so near the surface as to lift the earth, but this is common in case of Terfazias, which are even found, growing partly out of the soil or under leaves. Truffles are generally parasitic on trees; Terfazias, on under shrubs, such as Cystineæ, or apparently even on annuals like *Helianthus*. Terfazias cover immense districts. They are gathered and dried by the Arab population, to whom they hold the same place as the potato to the Irish peasant. They contain less nitrogen and phosphorus than truffles, but are superior in this respect to potatoes. The yearly value of the Perigord truffle (*Tuber melanosporum*) exceeds 20,000,000 francs. (E. F. S.)
- 607.** CHATIN, A. Contribution à l'histoire botanique de la truffe (*Kamés de Bagdad*). Rev. des Sci. Nat. et Appli., vol. 38, Paris, Nov. 20, 1891, pp. 582-584. Brief account of two truffles received in 1891 from M. Metaxas, of Bagdad, and referred to the genus *Terfezia*. One is described as *T. Hafizi*, n. sp., and the other is *T. Metaxasi*, n. sp. The author believes this genus will be found to be represented by as many species in the desert regions of Asia and Africa as is *Tuber* in the more temperate countries of Europe. (E. F. S.)
- 608.** GAILLARD, A. Observations d'un retour à l'état végétatif des Péritheces dans le genre *Meliola*. Bull. Soc. Mycol. France, vol. 7, Paris, Sept. 30, 1891, pp. 151-152. Notes the fact that certain perithecia remain paler and smaller than others. These are sterile and their cells grow out into long mycelial filaments. (E. A. S.)

- 609.** KNOWLES, H. G. **Truffles.** Repts. from consuls of U. S., No. 132, Sept., 1891, pp. 158-160. Considers truffles due to sting of insect. Notes method of hunting for them by pigs in France and describes training of dogs for the same purpose. Gives value of 452,361 pounds exported from France in 1889 at \$476,147. Explains method of canning. (J. F. J.)
- 610.** [? MASTERS, M. T.] **A Syrian Truffle.** Gard. Chron., 3d ser., vol. 10, London, Nov. 21, 1891, p. 617, $\frac{1}{2}$ col. Notes that M. A. Chatin has described a peculiar truffle in Comptes Rendus. (See No. 604.) (M. B. W.)
(See also No. 445 and 637.)

III.—*Sphaeriaceæ.*

- 611.** ATKINSON, GEO. F. **On the structure and dimorphism of *Hypocrea tuberiformis*.** Bot. Gazette, vol. 16, Oct., 1891, pp. 281-284, pl. 1. Describes the ascigerous, sphacelial, and stromatic forms of the fungus, placing it in the genus *Hypocrella* of Saccardo. Considers the species distinct from *Dussiella* of Patouillard, and shows the near relation existing between the genera *Epichloe* and *Hypocrella*. Points to separation of the genera on ground of inclosure or non-inclosure of culm of host by the stroma of the fungus as a trifling one, and cites case of *Hypocrella*, which surrounds opening buds of *Andropogon Virginicus* as torn asunder by opening of the buds. Paper read before Bot. Club of Am. Asso. Adv. Sci., Aug., 1891. (D. G. F.) See notice in *Ibid.*, Sept. 1891, p. 256.
- 612.** ATKINSON, GEO. F. ***Spharella gossypina*, n. sp., the perfect stage of *Cercospora gossypina*, Cooke.** Bull. Torrey Bot. Club, vol. 18, Oct., 1891, pp. 300-301, pl. 1. Gives paper read before the Bot. Club of the Am. Asso. for Advancement of Science, Washington, Aug., 1891, describing *Spharella gossypina*, n. sp., found very abundant upon leaves of *Gossypium herbaceum* attacked by *Cercospora gossypina*. Considers the *Spharella* a perfect stage of the *Cercospora*. (D. G. F.) See title in Bot. Gaz., vol. 16, Sept. 15, 1891, p. 261.
- 613.** COOKE, M. C. ***Cordyceps Hawkesii*, Gray.** Grevillea, vol. 19, London, Mar., 1891, pp. 76-78. Discusses the characters of the species as compared with other Australasian *Cordyceps*, and reprints the original description. (M. B. W.)
- 614.** COOKE, M. C. **Memorabilia.** Grevillea, vol. 19, London, Mar., 1891, pp. 80-81. Notes that *Valsaria parmularia*, Berk., specimens so-called in Roumeguères's Fungi Gallici, No. 4338, is not that species, but probably *Valsaria rubricosa*, Fr.; *Epichloe hypoxylon*, Peck, is identical with *Hypocrella atramentosa*, B. & C.; *Agaricus (Galera) mucidolens*, Berk., belongs to *Hyporrhodii*. (M. B. W.)
- 615.** COOKE, M. C. **New British fungi.** Grevillea, vol. 19, No. 91, London, Mar., 1891, p. 86. Describes *Hypocrea (Bromella) leptogicola*, Cke. & Mass., on *Leptogonium* growing upon *Robinia*; *Stuartella Carlylei* Cke. & Mass., *Mollisia dactyligluma*, on *Dactylis glomerata*, and *Lachnella stigmella*. (M. B. W.)
- 616.** DELACROIX, G. **Espèces nouvelles de champignons inférieurs.** Bull. Soc. Mycol. France, vol. 7, Paris, June 30, 1891, pp. 104-111, pl. 2. Describes *Plowrightia Karstenii*, *Herpotrichia ceratium*, *Ceratostoma truncatum*, *C. stromaticum*, *Nectriella maydis*, *Zignella culmicola*, Delacr. & Niel, *Chatomella longiseta*, *C. tortilis*, *Macrophoma carpincola*, *Coryneum faginum*, *Penicillium Duclauxi*, *Moronnopsis* (nov. gen.) *inquinans*, *Sterigmatocystis ochracea*, *Dictyosporium secalinum*, *Fusarium aeruginosum*, *Fusicoccum populinum*, *F. complanatum*. (E. A. S.)
- 617.** MACMILLAN, CONWAY. **Notes on fungi affecting leaves of *Sarracenia purpurea* in Minnesota.** Bull. Torrey Bot. Club, vol. 18, July, 1891, pp. 214-215. Gives notes on *Spharella sarraceniae* (Schw.) Sacc., *Leptosphaeria scapophila* (Peck), Sacc., *Peziza abrata* and *Pestalozzia aquatica*, E. & E. Describes as new species *Helminthosporium sarraceniae* and *Brachysporium sarraceniae*. (D. G. F.)
- 618.** PRILLIEUX ET DELACROIX. **Complément à l'étude de la maladie du cœur de la betterave.** Bull. Soc. Mycol., France, vol. 7, Paris, Mar. 21, 1891, pp. 23-25.

fig. 9. *Spharella tabifica*, a new species found in connection with *Phyllosticta tabifica* is considered as the ascomycetous form of the latter. Describes this together with the following new species found in connection with the *Phyllosticta*: *Ascochyta beta*, *A. beticola*, *Diplodia beticola*. (E. A. S.)

- 619.** WESTWOOD, I. O. **Parasites on Plants and Animals.** Gard. Chron., 3d ser., vol. 9, London, May, 1891, p. 553, 2 cols., fig. 4. Popular description of the external appearance of *Cordyceps* on larvae. (M. B. W.)
(See also Nos. 392, 445, and 621.)

IV.—Discomycetes.

- 620.** BOYER. **Note sur la Reproduction des Morilles.** Bull. Soc. Mycol., France, vol. 7, No. 3, Paris, Sept. 30, 1891, p. 150. Gives details of a successful experiment in reproducing the Morel on a substratum apparently free from infection before sowing on it the débris of some partially liquefied specimens. (E. A. S.)
- 621.** COOKE, M. C. **Omitted Diagnoses.** Grevillea, vol. 19, London, March, 1891, pp. 71–75. Contains descriptions of 23 species of fungi which are not found in Saccardo's Sylloge, in the genera *Peziza*, *Sphaeria*, *Helotium*, *Phialia*, *Lachnella*, *Bulgaria*, *Ombrophila*, *Ryparobius*, *Patellaris*, *Phacidium*, and *Phoma*. (M. B. W.)
- 622.** PHILLIPS, W. **Omitted Discomycetes.** Grevillea, vol. 19, No. 92, London, June, 1891, pp. 106–107. Contains descriptions of the following species not in Saccardo's Sylloge. *Aumaria stomella* Cke. and Phil., n. sp., *Hymenoscypha Carmichaelii*, Berk., Phil., *H. flexipes*, Cke. and Phil., *Helotium aurantiacum*, Cke., *Mollisia chlorosticta*, E. P. Fries, *Lachnella luzulina*, Phil. = *Dasyascyphus hyalina* (Phill.) Sacc., *L. albopileata*, Cke. var. *subaurata*, Ellis; *L. conformis*, Cke., *Encelia hypochlora* Berk. and Curt. (M. B. W.)
(See also Nos. 445, 452, 615, and 644.)

I.—IMPERFECT AND UNCLASSIFIED FORMS.

I.—*Hypomycetes and Stilbeæ.*

- 623.** BOUDIER, EM. **Quelques nouvelles espèces de Champignons inférieurs.** Bull. Soc. Mycol., France, vol. 7, No. 7, Paris, June 30, 1891, pp. 81–83, pl. 1. Describes the following new species: *Botrytis albido-caesia*, *Mycogone ochracea*, *Volutella albopila*, *Hymenula citrina*. (E. A. S.)
- 624.** DUFOUR, JEAN. **Le Champignon parasite des vers blancs.** Chron. Agric. Vit. et Fores. du Vaud, vol. 4, Lausanne, Nov. 10, 1891, pp. 376–384. Gives some general notes on the presence of entomogenous fungi. Describes the ravages of *Botrytis tenella* on the white worm, and mentions the consequent attempts to propagate the fungus by infecting worms with spores produced in artificial cultures. In order to test this, several experiments were tried. Healthy worms were infected, both confined in pots and in the open ground. The worms seemed to resist the parasite even in the closed pots, and more strongly in the open ground. The conditions favoring a rapid infection are not yet known. (E. A. S.)
- 625.** GIARD, ALFRED. **Nouvelle recherches sur le Champignon parasite du hanneton vulgaire (*Isaria densa*, Link).** Comptes Rend., Soc. Biol., new ser., vol. 3, Paris, July 23, 1891, pp. 575–579. Shows that the fungus of the white worm was common in Lower Seine in 1866. Since then the equilibrium between the insect and its parasite has been preserved. The balance could, however, be turned in favor of the latter by spreading liquid cultures of the spores over the infested territory. The article contains the same notes on synonymy as No. 624. (E. A. S.)

- 626.** GIRARD, ALFRED. *Sur la transmission de l'Isaria du ver blanc au ver à Soie (Isaria densa, Link).* Comptes Rend., Soc. Biol., new ser., vol. 3, Paris, July 2, 1891, pp. 507-508. Shows that it is possible to infect the silk worm with the *Isaria* of the white worm. Hopes in this way to discover whether the *Isaria* is modified by its change of hosts and whether it approaches *Botrytis Basiana*. Suggests that care should be used in spreading the *Isaria* over regions where the silk worm is raised. (E. A. S.)
- 627** MAYO, N. S. *Enzootic cerebritis, or "staggers" of horses.* Bull. Kansas State Agric. Ex. Sta., Vet. Dept., No. 24, Manhattan, Sept., 1891, pp. 107-116, pl. 1. Reports results of experiments with moldy corn as the supposed cause of the "blind" or "mad staggers." Thinks the spores of *Aspergillus glaucus* are capable, when introduced into the circulation of the animal, of producing the disease. The presence of the growing mycelia thought to be ascertained in the liver of guinea pig inoculated with water containing spores of the fungus. Gives result of experiment with colt fed upon corn covered with *Aspergillus glaucus*, attributing final death of the animal to presence of the spores of the fungus in its system. (See also Rept. Kansas State Board Agric., Topeka, Sept., 1891, pp. 42-50; noticed in Exper. Sta. Rec., vol. 3, January, 1892, pp. 388-389.) (D. G. F.)
- 628.** PRILLIEUX ET DELACROIX. *Endoconidium temulentum, nov. gen. nov. sp.* Prill. et Dela., Champignon donnant au seigle des propriétés vénéneuses. Bull. Soc. Mycol., France, vol. 7, No. 2 June 30, 1891, pp. 116-117, fig. 2. Describes the new genus, *Endoconidium*, having the spores formed within a tube. Species *E. temulentum*, found on rye in 1890, in the department of Dordogne, and giving it a poisonous quality. On a few of the same grains was found another new species, *Fusarium minutum*, related to *F. ruberrimi*, Dela. (E. A. S.)
- 629.** SKUSE, F. A. A. *The New Zealand vegetable caterpillar.* Victorian Naturalist, vol. 8, Melbourne, June-July, 1891, pp. 47-48. Refers to paper by Thos. Steel, and states that the larva attacked by the fungus *Isaria Robertii* is not that of *Hapialus virescens*. Quotes from other authorities in reference to this point, and it therefore remains a question as to the species attacked by the fungus. (J. F. J.)
- 630** THAXTER, ROLAND. *On certain New or Peculiar North American Hyphomycetes, II.* Bot. Gazette, vol. 16, July, 1891, pp. 201-205, pl. 2. Describes *Helicocephalum sarcophilum*, nov. gen. et nov. sp., on carrion from Conn., found in laboratory cultures; *Gonatorrhodiella parasitica*, nov. gen. et nov. sp., on *Hypocreæ* and *Hypomyces*; *Desmidiospora myrmecophila*, nov. gen. et nov. sp., on the body of a large ant, Conn. Remarks this latter species may possibly be an imperfect form of *Cordyceps unilateralis*, Tul., and suggests possibility of its being parasitic on young *Isaria* or *Cordyceps* previously developed on the insect. Describes also *Everhartia lignatilis*, nov. sp., on wet logs from Conn., figuring *E. hymenuloides* Sacc. and Ellis for comparison. (D. G. F.)
- 631.** TRABUT, L. *Les Champignons parasites du Criquet Pèlerin.* Rev. Gen. Bot., vol. 3, No. 34, Paris, Oct. 15, 1891, pp. 401-405, pl. 1. Notes a fungous disease on the migratory locust (*Acridium perigrinum*) in Algeria, found especially on females after laying the eggs. The fungus was named *Botrytis acridiorum* by the author, and *Lachnidium acridiorum* by Giard, the latter name being adopted in the article. MM. Knuckel and Langlois have referred it to *Polyrhigium leptophycei*, Giard. The fungus develops on all the membranes covering the joints, but more especially between the abdominal rings. It is entirely superficial never penetrating the body cavities. Two kinds of spores have been found—one round and unicellular, the other elongated and septate. The article also describes *Cladosporium herbarum*, var. and *Saccharomyces? parasitaris* as parasitic on the bodies, and *Oospora ororum*, n. sp. on the eggs of the insects. (E. A. S.) (See also Nos. 445, 541, 612, 616, and 617.)

II.—*Sphaeropsidæ and Melanconeæ.*

632. PAMMEL, L. H. **Spot Disease of Cherry** (*Cylindrosporium padi*.) Bull. Iowa Agric. Ex. Sta. [Ames], No. 13, Des Moines, May, 1891, pp. 55–66, pl. 2, fig. 3. Discusses the synonymy of the species and describes the microscopic characters of the fungus with list of plants affected by it. (D. G. F.)
633. PAMMEL, L. H. **Spot Disease of Currants and Gooseberries.** Bull. Iowa Agric. Ex. Sta. [Ames], No. 13, Des Moines, May, 1891, pp. 67–71, figs. 3. Discusses the literature and geographical distribution of *Septoria ribis*, Desm., *Cercospora angulata*, Wint. and *Gloeosporium ribis*, Peck. Expresses the opinion that the *Cercospora* is the fungus which causes in part the defoliation of white and red currants. Thinks *Sphaerella grossulariae*, Fr. is genetically connected with *Cercospora angulata*, Wint., and also with *Septoria ribis*, Desm. (D. G. F.)
- 634. PRILLIEUX ET DELACROIX. *Hendersonia cerasella*, nov. sp.** Bull. Soc. Mycol., France, vol. 7, No. 1, Paris, Mar. 31, 1891, pp. 21–22, figs. 2. Describes *Hendersonia cerasella*, a new species found on the sterile spots of *Coryneum Beijerinckii* on cherry leaves. (E. A. S.)
(See also Nos. 383, 391, 445, 616, 617, 618, and 621.)

III.—*Miscellaneous.*

635. COMSTOCK, J. H., and SLINGERLAND, M. V. **Wireworms.** Bull. Cornell Univ. Agric. Ex. Sta., entomological division, No. 33, Ithaca, Nov., 1891, p. 211. Notes *Metarrhizium anisopliae*, as determined by Thaxter, attacking and killing the larvæ of wireworms under experiment. (D. G. F.)
- 636. MASSEE, GEO. *Sarcomyces*, new genus.** Grevillea, vol. 20, London, 1891, pp. 13–14. Describes *Sarcomyces vinosa* nov. gen. and nov. sp., on wood from Venezuela and South Carolina. (D. G. F.)
637. SOUTHWORTH, EFFIE A. **Notes on some curious fungi.** Bull. Torrey Bot. Club, vol. 18, Oct., 1891, pp. 303–304. Describes briefly peculiar fungus, possibly *Polyporus officinalis* from California, and *Erysiphe* like form on *Muhlenbergia*; also a superficial fungus on bark of orange likely to prove a species of *Phymatotricha*. (D. G. F.)
(See also Nos. 437, 445, and 631.)

G.—MORPHOLOGY AND CLASSIFICATION OF BACTERIA.

- 638. BLANCHARD, Dr. R. Sur un Spirille géant développé dans les cultures de sédiments d'eau douce d'Aden.** Rev. gén. sci., pure et appliq., 2 ann. Paris, Jan. 15, 1891, pp. 21–22, figs. 8. Review of a paper by A. Certes in Bull. de la Soc. Zool. de France, t. 14, p. 322. (E. F. S.)
- 639. HENNEGUY, F. Contribution à l'étude de la morphologie et du développement des Bactériacées.** Rev. gén. sci., pure et appliq., 2 ann. Paris, Jan. 15, 1891, p. 21. Review of a paper by A. Billet in Bull. Scientifique du Nord de la France et de la Belgique, t. 21, 1890. (E. F. S.)
- 641. MANGIN, L. Die Pflanzen und Thiere in den dunklen Raumen der Rotterdamer Wasserleitung.** Rev. gén. sci. pure et appliq., 2 ann., Paris, Mar. 30, 1891, p. 193–194. Review (in French) of a paper by Hugo de Vries on the presence of *Crenothrix Kuhniana* in the water supply of Rotterdam. (E. F. S.)
- 642. METCHNIKOFF, E. Les idées nouvelles sur la structure, le développement et la reproduction des bactéries.** Rev. gén. sci. pure et appliq., 2 ann., Paris, April 15, 1891, pp. 211–216, figs. 14. The author considers bacteria most nearly related to the lower algae. The possession of a true nucleus, which often fills nearly the entire cell; the occurrence of pleomorphism, now proved for pathogenic

as well as saprophytic forms; the existence of gelatinous zoögloea; the existence of cilia, even in Coccus forms, and the multiplication by fission are all bonds of kinship with Cyanophyceæ. One objection to this view is the total absence of endospores in algæ. The formation of endospores connects the bacteria with the flagellate infusoria, while in their branching they recall fungi. Botanists have laid great stress on the fact that the spores of some bacteria germinate at the poles and others at the equator. The fact is, both methods occur in the same species. (E. F. S.)

(See also Nos. 527, 543, and 588.)

H.—MORPHOLOGY AND CLASSIFICATION OF MYXOMYCETES.

- 643. BALLIET, LETSON. *Slime molds*. The Ornithologist and Botanist, vol. 1, Binghamton, N. Y., Nov., 1891, p. 85, 1 col. Under this heading, describes popularly *Protococcus* on flowerpots. (D. G. F.)
- 644. BUCKNALL, CEDRIC. *The fungi of the Bristol district*. Part XIII, Proc. Bristol Nat. Soc., new ser., vol. 6, Bristol, 1891, pp. 274-277. A list of thirty fungi of various orders added to the flora of Bristol, with descriptions of some of the species. The following are described as new: *Oligonema furcatum*, *Perichaena confusa*, Masse in litt., *Lachnella fragariastris*, Phil. in litt. (M. B. W.)
- 645. LISTER, ARTHUR. *Notes on Myctozoa*. Jour. of Bot., vol. 29, London, Sept., 1891, pp. 257-268, pl. 5. Contains descriptions of fourteen species not included in Cooke's Myxomycetes of Great Britain, with five plates. The following new species are described: *Physarum calidris*, *Cornuria depressa*, *Hemiarcyria intorta*. (M. B. W.)
- 646. NIÉL, M. *Remarques à propos des Tubulina fragiformis*, Pers., et *cylindrica*, Bull. Bull. Soc. Mycol. France, vol. 7, No. 2, Paris, June 30, 1891, p. 98. Points out the differences between the two species as mentioned in previous descriptions. Does not see Saccardo's reasons for combining them. (E. A. S.)
- 647. REX, GEO. A. *Hemiarcyria clavata*, Pers. Proc. Acad. Nat. Sci. Phila., Part II. Phila., 1891, pp. 407-408. Records discovery of spinose processes on the spiral thickenings of the threads of capillitium of this species by use of oil immersion lens. (D. G. F.)
- 648. REX, GEO. A. *New American Myxomycetes*. Proc. Acad. Nat. Sci. Phila., Part II. Phila., 1891, pp. 389-398. Describes the following species as new: *Physarum nucleatum*, *Physarum penetrale*, *Chondrioderma aculeatum*, *Stemonitis Webberi*, *Stemonitis Virginensis*, *Stemonitis nigrescens*, *Comatricha irregularis*, *Cibraria violacea*, *Cibraria lanuginosa*, *Trichia Andersoni*, *Hemiarcyria longifila*, *Hemiarcyria Varneyi*, *H. obscura*, *Dianema*, nov. gen., *D. Harveyi*. (D. G. F.)
- 649. REX, GEO. A. *Trichia proximella*, Karst. Proc. Acad. Nat. Sci. Phila., Part III, Dec. 16, 1890, pp. 436-438. Gives comparison of *Trichia proximella* Karst, and *T. Jackii* Karst, and a series published in JOURNAL OF MYCOLOGY, Aug., 1886, as possessing diagnostic characters of *T. affinis*, DBy. and *T. Jackii*, Rostf. Decides all three as forms differing only in development. (D. G. F.)
- 650. WINGATE, HAROLD. *Note on Stemonitis maxima*, Sz. Proc. Acad. Nat. Sci. Phila., Part II. Phila., 1891, p. 438. Gives result of examination of type specimens of *Stemonitis maxima*, Sz., found in Schweinitz herbarium which he decides is identical with a form found commonly in vicinity, to be issued shortly in N. Am. Fungi. (D. G. F.)

(See also No. 652.)

J.—TECHNIQUE.

652. COOK, O. F. **Methods of collecting and preserving Myxomycetes.** Bot. Gazette, vol. 16, Sept. 15, 1891, p. 263. Notice of remarks made before the Bot. Club of A. A. A. S., Aug., 1891, describing method of preservation of specimens of *Myxomycetes* by use of two stiff pieces of cardboard, separated by strips of cork glued to each end, between which the specimens are glued. The two pieces of cardboard are then inclosed in an ordinary herbarium pocket. (D. G. F.)
653. GRAZIANI, A. **Les réactifs utilisés pour l'étude microscopique des champignons.** Bull. Soc. Mycol. France, vol. 7, Paris, Sept. 30, 1891, pp. 189-192. A list of reagents used in studying fungi, together with formulæ for those that are not simple liquids or solutions. (E. A. S.)
(See also Nos. 545, and 647.)

